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Utilization of Savings and Credit by Household Characteristics in Uganda and the Implications for Linkage Banking Programs

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UTILIZATION OF SAVINGS AND CREDIT BY HOUSEHOLD CHARACTERISTICS IN UGANDA AND THE IMPLICATIONS FOR LINKAGE BANKING PROGRAMS

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ABSTRACT

The objectives of this thesis are to 1) estimate the overall distributions of household characteristics, 2) estimate the overall distributions of access to savings and credit products, and 3) determine the relationship between household characteristics and access to savings and credit products from various formal, semi-formal, and informal institution types. The goal of this thesis is to provide a direction for future linkage banking programs by finding which household characteristics should be targeted by this type of program. Panel data published by World Bank from the Uganda National Household Survey (UNHS) collected in 2005/06 and the Uganda National Panel Survey (UNPS) in 2009/10 were used in the analysis. In this thesis the results of the questionnaire are used to estimate the overall distributions of household characteristics and access to savings and credit, and then chi-squared tests are used to find significant relationships between the household characteristics and access to financial products from a variety of formal, semi-formal, and informal institutions.

The results show that there are significant differences in access to savings from formal institutions, credit unions, savings associations, microfinance institutions, savings and credit cooperative organizations, and informal savings groups by age, gender, marital status, and education of the household head; household size; rural or urban location of the household; type of shocks experienced by the household; type and value of assets; and main income source of the household. The results also show significant differences in access to credit from a bank, microfinance institution, credit union, savings and credit cooperative organization, informal savings group, employer, friends, and relatives by age,

gender, and marital status of the household head; household size; rural or urban location of the household; type of shocks experienced by the household; asset value; and main source of household income.

The results show that household characteristics have a significant effect on financial access in Uganda and suggest that rural households, households with less than six members, and those households whose heads are between the ages of 15-24, 65 or older, are female, not married, have little or no education, have lower asset value, or depend mainly on subsistence farming income are the households that are more financially excluded.

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CHAPTER ONE

INTRODUCTION

This thesis is a study on the relationship between financial access and household characteristics in Uganda. More specifically, we are looking at access to savings and credit by type of institution and the implications for linkage banking programs in Uganda. The study was based on panel data from the World Bank. The data were collected from households in Uganda in 2005/06 and also in 2009/10. This first chapter of the thesis presents an overview of the financial sector in Uganda and a general background of the problem of financial exclusion in developing countries. The rest of the chapter discusses the problem statement, the purpose of this study and its significance, and an overview of the methodology.

We define access as having a loan or owning a savings account. We do not use proximity to or availability of a bank branch alone to define access because there are other barriers to access for the rural poor. These barriers can include failure of the bank to target the rural poor market; inappropriate design of products or inappropriate fee structures that do not fit the needs of the rural poor; literacy requirements; lack of trust of the commercial bank on the part of rural poor households; and other psychological or cultural barriers. Under the assumption that a majority of rural poor households would use at least one type of financial product, if an appropriately designed product were made available to them, we define access as having a loan or owning a savings account.

The banking sector in Uganda is divided into four tiers. The first three tiers are commercial banks, credit institutions, and micro-deposit taking institutions (MDIs).

These are all considered to be formal financial institutions. Tier four institutions include a variety of semi-formal and informal institutions, including microfinance institutions (MFIs), savings and credit cooperative organizations (SACCOs), non-governmental organizations (NGOs), and informal savings groups, which are not regulated by the Bank of Uganda (The SEEP Network, AMFIU, and Citi Foundations 2008).

Uganda gained independence from Britain in 1962 and remained politically unstable throughout the 1970s. The pace of financial sector development in Uganda was slow throughout the 1980s, but it has expanded rapidly since then. In 2003, the Ugandan government passed the MDI Act, which set a minimum capital requirement and other requirements for MFIs that wish to be licensed to accept deposits (Kalyango 2005). This prevents many MFIs from accepting deposits for on-lending (where one party borrows money to lend to another party), but it also serves to protect people from unscrupulous MFIs who intend to steal their clients' deposits. The MDI Act applies in all cases except SACCOs, which are allowed to mobilize savings despite being unregulated, since they are member owned institutions.

The commercialization and integration of the microfinance sector into the formal finance sector brought a shift of support of the government from formal MFIs to rural SACCOs. The Government of Uganda recognizes MFIs as being part of the formal financial sector (The SEEP Network, AMFIU, and Citi Foundation 2008). By 2006, the government pulled support from all MFIs except for SACCOs (The SEEP Network, AMFIU, and Citi Foundation 2008) and began the Rural Financial Services Program 'one SACCO per sub-county' policy. According to the Uganda Bureau of Statistics (UBOS),

in 2010 there were 2,063 functional SACCOs and 1,085 of these were created by the government for the 'one SACCO per sub-county' policy (UBOS and MOFPED 2010). In 2005, a census was conducted by the Ministry of Finance, Planning, and Economic Development and the Financial Sector Deepening Project Uganda which showed only 628 SACCOs active out of 1,278 (AMFIU and FSDU 2007).

A study from Finscope Africa reports the following statistics measuring financial inclusion. In this study, availability of financial service is used as a proxy for access. As of 2009, 17% of Ugandans had access to tier one financial services (commercial banks), 3% to tier two (credit institutions), 3% to tier three (MDIs), 3% to SACCOs, and 3% to MFIs. In 2009, 43% of Ugandans had access to informal financial services, up from 29% in 2006. This increase in access to informal finance reduced the percentage of Ugandans who were excluded to only 28%, compared with 43% in 2006. Uganda has a higher percent of clients in the informal sector than other African countries, and has the second lowest exclusion rate (when including semi-formal and informal sectors), the lowest being in South Africa (Finscope 2010).

Uganda, like many developing countries, has struggled to provide financial services to the most poor. Kendall, Mylenko, and Ponce (2010) estimate that, in developed countries, 81% of adults have access to a bank and there are 3.2 accounts per adult. However, in developing countries only 28% of people have access to a bank and there are only about 0.9 accounts per adult.

The poor need access to a variety of financial services such as deposit accounts, credit, microinsurance, and payment/transfer accounts. These products can provide

households with consumption smoothing and prevent income fluctuations (Akpandjar, Quartey, and Abor 2013). Research has shown that there is a large demand for deposit accounts, money transfer and payment services, and insurance products, and that these may be more beneficial for the rural poor than access to credit (Brau and Woller 2004, Nourse 2001, Beck, Demirguc-Kunt, and Honohan 2009). It was discovered that microfinance borrowers often took a business loan and used it for other purposes, such as school fees, burial costs, and medical costs, demonstrating a demand for a wider variety of loan products, such as consumption and emergency loans (Chan and Lin 2013). In a study by Chan and Lin (2013), over 23% of respondents used their business loans for consumption purposes.

Financial products in Uganda are offered by formal, semi-formal, and informal institutions. Formal institutions include commercial banks, credit institutions, and micro-deposit taking institutions. Semi-formal institutions such as MFIs and SACCOs are subject to some reporting requirements but are not fully regulated as are the formal institutions. Informal institutions are unregulated (Johnson and Nino-Zarazua 2011), and can include moneylenders, employers, pawnbrokers, informal savings groups, friends, and family. The type of institution will vary by the needs of the customer and are presented here in order of most informal to most formal.

The most informal of these (excluding borrowing from friends, family, and moneylenders) are savings groups, which come in a variety of forms. The model of savings group developed by the Cooperative for Assistance and Relief Everywhere (CARE) and used by Peace Corps in Uganda is the Village Savings and Loan

Association, and is the type referred to in this thesis, unless another type of savings group is specified. The Village Savings and Loan groups are self-selected groups of 15-30 people who organize themselves for the purpose of saving and lending among themselves.

Savings and Credit Cooperative Organizations are widely available semi-formal financial institutions. As a result of the 'One SACCO per sub-county' policy, most people have access to SACCOs. These semi-formal institutions are common in rural areas and are more accessible than most formal institutions, but are often poorly managed. There are also unregulated MFIs present in towns and sometimes in more rural areas.

The more formal financial institutions in Uganda include regulated MDIs, which are available in most urban and peri-urban settings and provide a safe place for clients to keep their savings in addition to offering credit, microinsurance, and money transfer services. Commercial banks provide deposit accounts and larger loans, typically at a lower interest rate than MFIs and SACCOs. The poor use a variety of products from formal, semi-formal, and informal institutions (Kendall, Mylenko, and Ponce 2010).

The term 'linkage banking' can mean different things, but in the context of this thesis, it refers to the linkage of savings groups (VSLAs) to formal financial institutions (commercial banks). Linkage banking often involves an intermediary that links the rural poor to commercial bank products, such as an NGO or moneylender. Linkage banking programs are often designed to be demand-driven and savings-led, meaning that the financial services are offered as a result of direct demand and the participants save first

before accessing loan products. These savings are often collected informally as part of a village savings group, before accessing bank services.

The CARE linkage program in Uganda, which we use as an example throughout this thesis, is both demand-driven and savings-led. Another important component of the CARE linkage program is the financial literacy training they provide to the savings groups. Cole, Sampson, and Zia (2011) found that respondents with below-median financial literacy were 20% more likely to open a bank account within two months if they attended a financial literacy training session. If there is a relationship between a household's propensity to save and their ability to access commercial bank services, it may provide evidence that savings-led programs, such as the CARE linkage banking program, are a good approach for connecting the rural poor to formal finance.

Common challenges in the provision of financial services to the poor that will need to be addressed in the design of linkage programs include transportation costs, security of deposits in transit, and information asymmetries. Transportation costs and security issues could be solved by mobile banking services. This can include money transfers done by mobile phone, rural ATM machines, or using an intermediary, such as a shop owner, moneylender, or SACCO, who has an account with the formal financial institution and earns a commission for each transaction carried out. Some programs avoid high transportation cost in part by working with groups rather than individual participants. When a group opens and maintains an account, one or two group members can go to the branch to make withdrawals or deposits on the group's behalf, dividing the costs between many people.

Information asymmetries exist when the financial service provider does not have enough information about their prospective clients or when the clients do not have an understanding of how the financial institution operates. The CARE linkage banking program reduces information asymmetries by providing training to the institution on how to work with the rural poor, as well as providing training to the rural savings groups on how to appropriately manage an account with a formal bank.

Microfinance was initially intended to serve the rural poor with business loans who, prior to microfinance, had no access to financial services. It was believed that village moneylenders were taking advantage of rural people by charging usurious rates due to rural households' lack of other options for borrowing (Aleem 1985). Recent research has shown that the poorest households are not being served by microfinance, but rather the moderately poor are being served. In Uganda, only approximately 15% of microfinance customers were found to be among the poorest of the poor, as defined by the official poverty line for Uganda (Morduch 2006). This is believed to be due to a shift in focus of microfinance institutions to a profit making business rather than remaining focused on the social goal of alleviating poverty, which relies on subsidies (Armendariz and Morduch 2010).

In 2008, the CARE linkage banking program began in Uganda, and research is showing an increase in formal financial usage (CARE International and UKAID 2013). While there are differing opinions among practitioners in the field on whether or not the rural poor should use formal financial products, many programs have attempted these linkages in several different countries, but have faced a variety of challenges. The CARE

linkage banking program has characteristics that differ from previous linkage banking programs in Sub-Saharan Africa, which, if successful, would provide a model of linkage banking that could inform other demand-driven and savings-led programs.

This thesis is significant because it is necessary to identify which types of households are using which types of financial institutions for savings and credit products in order to target the appropriate population for linkage banking programs. This study can serve as a baseline for a more in depth study of the CARE linkage banking program.

Linkage banking programs are important because commercial banks are now beginning to view the rural poor as their future clients (CARE International and UKAID 2013). If that is the case, the commercial banks that start linkage efforts now will have a head start in expanding into this market compared to banks which are not willing to make the effort to recruit the rural poor as clients.

The rural poor can benefit from commercial banks in a variety of ways. They can have a secure place to keep their savings, can have the ability to transfer money and make payments, and may gain access to loans in higher amounts and with better terms than currently available. Through personal observations from working with SACCOs and savings groups, it is apparent that people living in rural areas of Uganda often save money at home, in a locked box held by a member of their savings group, or at a SACCO, all of which are less secure than a deposit account at a commercial bank. Business loans from commercial banks are available in larger amounts and better terms than many other financial institutions and typically charge lower interest rates. Banks are not likely to demand weekly repayment which can be challenging for those with seasonal

income to repay and are more likely to offer monthly or lump sum repayment. Credit programs targeting the poor can begin with small loans and increase the amount as the borrower continues to repay loans successfully. These loans may be more beneficial to micro-entrepreneurs expanding their business than small loans from MFIs and savings groups, which often collect repayment every week, regardless of the borrower's business cycle.

There is no consensus among researchers on which financial institutions should be responsible for serving the rural poor. Many researchers believe that commercial banks are not able to meet the needs of the rural poor. For example, while Mookerjee and Kalipioni (2010) find that greater access to bank branches is good for the poor, they also conclude that barriers to banking services, such as high fees for opening a checking or savings account is detrimental. It is likely that not all rural poor want or need formal financial products. Many may be happy with being in a savings group and may never access any loans or insurance products from outside sources, while some may remain in the group and also access services from other institutions. Others may quit the group when they feel ready and able to access larger loans and some may never join a savings group, but rather go directly to an MFI or SACCO. Whether or not the majority of rural clients want or need formal products, they should be available to those who do need them. However, it can be argued that rural clients should not be pressured into using any financial services they do not wish to use.

When organizations began working on linkage programs in the 1980s, Sub-Saharan African countries did not have the infrastructure to support a linkage program,

although they were often successful in Asian countries. The infrastructure and financial sector in Uganda have improved since the 1980s and savings-led linkage banking programs may now be more feasible.

The overall objective of this research is to identify which household characteristics have the greatest effect on access to savings and credit products from a variety of institution types. Access is defined as owning a savings account or having a loan. After identifying the household characteristics most identified with access to savings and credit, this information can be used by organizations designing programs to connect savings group members with commercial bank products.

We looked at distributions of household characteristics first and then used chi-squared tests to find which household characteristics have a significant relationship with access to savings and credit from various types of financial institutions. Panel data published by World Bank from the Uganda National Household Survey (UNHS) collected in 2005/06 and the Uganda National Panel Survey (UNPS) in 2009/10, consisting of 3,123 households, are used in the analysis.

The rest of this thesis will proceed as follows: Chapter 2 provides a review of the general microfinance literature and a review of previous linkage banking programs; Chapter 3 gives a more detailed description of the methodology used in this thesis; Chapter 4 presents and analyzes the results; and Chapter 5 summarizes and discusses the results.

CHAPTER TWO

LITERATURE REVIEW

There is a large body of research about microfinance and financial inclusion in developing countries. This literature review presents an overview of microfinance literature as it relates to the shift in focus from microcredit only to financial inclusion, the potential effects of financial inclusion, financial access and usage, issues with loan diversion and over-indebtedness, demand for financial services, technological innovations in finance, and the importance of financial literacy. It provides an overview of linkage banking programs in developing countries and concludes by presenting CARE's Banking on Change program in Uganda.

3.1 History of microfinance

While microfinance institutions provide savings, insurance, and loans, most efforts to formalize institutions have focused on enterprise loans (Brau and Woller 2004). This enterprise lending bias ignores the large, unfulfilled demand among the very poor for consumption and emergency loans (Woller 2002). It appears on the surface that informal businesses would need access only to credit for business and productive purposes. However, because business production, household consumption, and insurance needs are intertwined for the informal sector entrepreneur, other financial needs are equally important (Nourse 2001). Evidence indicates that the type of savings required by microfinance programs (often used as a guarantee for loan repayment and only accessible if the client drops out of the program) do not offer adequate services to meet

consumption, income smoothing, and emergency needs of households. Informal sector households need a diverse range of lending and savings products to meet all of these needs (Nourse 2001). According to Woller, microfinance institutions lacked a focus on the products that their clients want them to produce, and were focused on institutional needs rather than the needs of their clients. He argues that, in order to achieve the goal of poverty alleviation among the very poor, it is necessary to focus on the wants and needs of the client (Woller 2002).

Many other financial products, including savings, can meet the needs of the poor. According to a study in Latin America,

> "Mobilizing savings from low-income clients seems to represent the lost opportunity of microfinance in Latin America. At the same time, retail banks in the last two to three years have opened millions of small deposit accounts in the same countries where microfinance institutions have added fewer than 200,000 new clients (Christen 2000)."

At microfinance institutions that do offer voluntary savings, savers usually far exceed borrowers (Brau and Woller 2004).

Microfinance institutions experience delinquency-driven desertion due to household shocks. These desertions could be prevented by the provision of financial services which allow a household to better manage risk, such as voluntary savings, a variety of loan products, and insurance. Insurance can reduce loan losses and prevent the household from drawing down their savings in an emergency (Churchill 2002). There is

thought to be a large demand for formal insurance among the poor (Brau and Woller 2004).

Although the focus of microfinance in the beginning was to serve the poorest households, it is now common for MFIs to serve a higher income clientele. While financial access may improve the livelihoods of the rural poor, a study in Ghana found that rural banks are providing financial services that meet the needs of the urban population and are neglecting the needs of the rural poor (Akpandjar, Quartey, and Abor 2013). This is referred to as mission drift.

3.2 Impact of financial inclusion on income inequality

The recent trend in microfinance is to encourage deposits, transactions accounts, and microinsurance, in addition to loans, as tools for financial management in developing countries. Poverty and inequality in low income households could be influenced by formal access to deposit accounts, payment services, and risk-pooling (Honohan 2008). This move away from credit-only is in part due to the realization that credit may not be the most appropriate financial service for some households because many poor households do not have the opportunity to invest in economic activities that have a high return, as was originally believed. There is, in fact, demand among low-income households for deposit facilities, payment and money transfer services, microinsurance products, and financial literacy services, in addition to credit (Fernando 2007).

Recent studies have found a link between financial access and income inequality. Mookerjee and Kalipioni (2010) conclude that greater access to bank branches and

services is good for the poor, but that the high cost of opening a checking or savings account is detrimental in terms of income distribution. In a cross-country study that examined the Gini coefficient, the income share of the poor, and the percentage of the population living on less than $1 a day, Beck, Kunt, and Levine (2007) found that financial development reduces income inequality, has a disproportionately positive impact on the poor, and is strongly associated with poverty alleviation. This finding is reinforced by Beck, Demirguc-Kunt, and Honohan (2009), who find similar results reported in a majority of cross-country regressions. Clarke, Xu, and Zou (2006) also find that financial development reduces income inequality.

Fernando (2007) summarizes the potential results of financial exclusion as the following: reliance on self-savings or informal sources for financial needs, increased cost of government welfare programs, reduction in freedom of choice, low income and savings, low social development, persistent poverty, greater social and economic inequality, and social exclusion.

A study in Ghana found that microfinance institutions are more innovative when it comes to loan products compared to savings and that credit unions are the only institutions that offer microinsurance. One reason given as to why MFIs prefer offering credit is the higher margin gained (although in Uganda, there are few MFIs that are able to offer savings due to government regulation). Savings could benefit MFIs by giving clients a way to repay their loans in cases where they would not otherwise be able to pay and also by providing more funds to lend to clients. The Ghana study also recommends

that MFIs invest more in research and development to provide appropriate microinsurance products for the poor (Dary 2013).

3.3 Impact on GDP and economic growth

Beck, Demirguc-Kunt, and Levine (2007) find that financial development is positively and significantly correlated with GDP per capita growth; Kendall, Mylenko, and Ponce (2010) find GDP per capita to be strongly positively correlated with all measures of financial inclusion in a cross-country study.

Yang and Yi (2008) find a positive relationship between financial development and economic growth in Korea and Bittencourt (2012) finds the same in Latin America. Hassan et al. (2011) find a two-way causality between financial development and economic growth in many regions in a cross-country sample. However, they find in sub-Saharan Africa that financial development causes economic growth, and not vice-versa. They point out that this result supports the hypothesis of previous studies that this relationship is common in developing countries due to the increasing demand for financial services (Hassan, Sanchez, and Yu 2011).

Beck, Demirguc-Kunt, and Peria (2007) find that GDP is positively associated with the number of bank branches, ATMs, loans, and deposits, but negatively associated with the ratio of deposits to income (measured by the average size of deposits to GDP per capita). They also find that higher deposits per capita and geographic branch penetration (measured by the number of branches per 1,000 square kilometers) are positively correlated with more households with savings accounts. For Uganda, these indicators

were much lower than the median from data collected from 99 countries. Uganda falls in the lowest quintile for bank branches per capita, loan accounts per capita, and deposits per capita (Beck, Demirguc-Kunt, and Peria 2007).

3.4 Financial access and usage

Estimates from a cross-country study suggest that only 19% of adults in developed countries remain unbanked, while about 2.7 billion, or 82%, of adults in developing countries remain unbanked. There are approximately 6.2 billion deposit accounts in the world, but in developing countries almost 70% of adults do not have access to a formal deposit account. In Uganda, fewer than 20% of households report having a savings account at a formal institution. Dividing the amount of accounts in each country by the number of adults gives estimates of 3.2 accounts per adult in developed countries and only 0.9 accounts per adult in developing countries (Kendall, Mylenko, and Ponce 2010).

Research on financial access in Uganda by Johnson and Nino-Zarazua (2011) shows that those whose primary income is from pension, transfers, or farm work are more likely to be financially excluded overall, and significantly less likely to have access to formal finance, than those who own a business. The study also found that those in the age range 25-44 are more likely to be formally included than those 18-24 and over 45, and that there is no significant difference in exclusion between rural and urban areas. One explanation for this result may be the Ugandan government's policy of 'one SACCO per sub-county'. Savings and Credit Cooperative Organizations, or SACCOs are prominent

in the rural areas of Uganda and are the only informal financial institutions allowed to mobilize savings. Another explanation could be that there are many low-income households living in slums in the urban areas who are also excluded from formal financial services, which may also explain the finding that those in Central Uganda (excluding Kampala) are half as likely to be included and almost twice as likely to be excluded from formal financial services than those in Kampala. The study found the strongest factor related to formal financial inclusion to be access to secondary education. While Uganda does have universal primary education, far fewer Ugandans have access to secondary education.

3.5 Voluntary exclusion (access VS. usage)

Since there are as many people in developing countries who are not using financial services as there are using financial services in developed countries, we can operate under the assumption that exclusion is mostly involuntary. This assumption is reinforced by research demonstrating a demand for savings and by the fact that many poor people in developing countries are already using informal financial services (Johnson and Nino-Zarazua 2011). Kendall, Mylenko, and Ponce (2010) draw a similar conclusion and some research has gone deeper into explaining voluntary exclusion by discussing the psychological and social reasons that may cause people to self-exclude when they would otherwise use financial services.

In addition to common reasons for voluntary exclusion, such as collateral, interest rate, and transaction costs, Osei-Assibey (2010) hypothesizes a conceptual framework

which also includes psycho-social issues as a reason for voluntary exclusion. Psycho-social reasons for exclusion include illiteracy, perceived difficulty in accessing finance, religious or cultural beliefs or bias, lack of information or misinformation about the financial system, or lack of trust of financial institutions.

In a recent study in Ghana, it was found that perceived difficulty in accessing finance has a statistically significant effect on voluntary exclusion, resulting in the tendency of the potential borrower to cite reasons related to collateral, interest rates, or transaction cost, when, in reality, these are not the reasons for exclusion. Financial knowledge is also statistically significant, with a greater knowledge corresponding to a lower likelihood of voluntary exclusion. The study, therefore, recommends extensive financial literacy programs and social mobilization at the grassroots level as an approach for reducing voluntary exclusion (Osei-Assibey 2010).

3.6 Loan diversion and the shift toward consumption loans

Chan and Lin (2013) find evidence in China of microenterprise loans being either fully or partially diverted for consumption purposes. They describe a situation where 47% of farmers used their business loans for consumer demands such as their children's education, medical care, food, housing, and weddings, demonstrating a clear demand for consumer loans. Karlan and Zinman (2009) find that microfinance loans work more broadly through household risk management and investment, rather than directly through the targeted microenterprise, and their results of an experiment in South Africa shows significant and positive effects of the expansion of consumer credit on food consumption,

economic self-sufficiency, and some aspects of mental health (Karlan and Zinman 2010). In Ghana, expenses related to education and day-to-day consumption are found to be the main reasons for loan diversion to non-productive uses. Schicks (2014) recommends the introduction of products such as flexible, short-term consumption loans, savings accounts for education expenses, and emergency loans to meet this demand. Indeed, the demand for credit for consumption purposes may reflect a demand for more appropriate savings products (Beck, Demirguc-Kunt, and Honohan 2009).

3.7 Over-indebtedness

Although there is not a consensus on the definition of over-indebtedness for microfinance borrowers, common definitions usually include factors such as delinquency and default, which are risk factors from the perspective of the institution. More broad definitions include factors of client protection, such as the following definition from Schicks (2014):

> "A microfinance customer is over-indebted if he/she is continuously struggling to meet repayment deadlines and structurally has to make unduly high sacrifices related to his/her loan obligations."

Over-indebtedness can be caused by outside influences such as household shocks, by lender behavior, and by borrower behavior. The most significant ways that lender behavior increases the risk of over-indebtedness have been found to be a focus on marketing and growth, unsuitable product characteristics, or inappropriate lending procedures. Beck, Demirguc-Kunt, and Honohan (2009) claim that access to formal

payment and savings services may reach universality as economies develop, and point out that not everyone should qualify for credit, citing the sub-prime crisis in the United States as an example of the consequences of encouraging low-income households to borrow beyond their repayment capacity.

MFIs initially believed that their loans were replacing borrowers' informal credit sources, when, in fact, they are often adding to those sources and thus increasing the debt burden of the borrower. The demand for consumption and emergency loans discussed previously is evident in developing countries by the thriving business of moneylenders. Although moneylenders have been depicted as loan sharks who take advantage of the poor by charging extremely high interest rates, they actually provide a valuable service to those requiring quick money with flexible repayment terms (Brau and Woller 2004). Some research even suggests that MFIs increase the demand for moneylender credit (Jain and Mansuri 2003, Mallick 2009). This is thought to be due, in part, to the strict weekly repayment requirements of many MFIs, such that the repayments come due before project returns. In these cases, the borrower may choose to borrow from the MFI to fund the project and borrow from the moneylender to repay the MFI (Jain and Mansuri 2003). Morel et al. (forthcoming) find evidence of this in southwest Uganda, where moneylenders' clients often borrow from them to repay an MFI loan.

In the case of borrowers, the most important factors that contribute to over-indebtedness are cognitive and psychological biases and sociological pressures, which lead to bad financial choices (Schicks 2010). Schicks concludes that over-indebtedness

may be prevented by promoting savings over credit or offering insurance with loans, echoing in part the claim by Beck, Demirguc-Kunt, and Honohan above (Schicks 2014).

3.8 Experiment with expanded access to savings

In the first randomized experiment involving increased access to savings accounts rather than credit in Kenya, 87% of people who were offered a savings account accepted and 41% made at least two transactions within the first month of opening the account. This is in contrast to an experiment with credit, where less than 3% started a loan application. At the time of this savings account experiment, only 2.2% of respondents in the study had access to a formal savings account, with the main reasons reported as high opening fees and minimum balance requirements (similar results are found in Indonesia and India, where 37% of unbanked respondents in a household survey said they would open a bank account if the fees are halved and 58% would open an account if fees were eliminated (Cole, Sampson, and Zia 2011)). Results of this study show an increase in savings among women who work at the market as a result of the savings account, but no significant increase among men. The women increased savings in their accounts without decreasing other forms of saving, such as livestock and informal savings group deposits. They also found that consumption increased, especially food consumption, and that participants increased the amount invested in their business by about 60% (Dupas and Robinson 2009).

Dupas and Robinson discuss three potential reasons why the women in their study showed demand for a formal savings account, rather than investing the savings directly

back into their business. First, the amount a woman was able to save at one time was often not enough to purchase inputs, so it was necessary for them to save in small increments over time. Second, the income for their business may not be consistent over time, creating an intermittent need for cash. And third, in the case of a household shock, it may be preferable to have the more liquid cash savings, compared to working capital, which may be difficult to liquidate in an emergency. They also find two main reasons why the women were not able to save enough without a formal account. Keeping savings at home makes it difficult to resist temptation to spend, and secondly, there may be social pressure to lend the cash to neighbors, relatives, or husbands, making the less accessible formal savings account preferable to saving at home (Dupas and Robinson 2009).

3.9 Demand for risk management tools

For many poor households, credit is not the primary financial service they need. Savings, payment services, remittances, and microinsurance products may be more important (Beck, Demirguc-Kunt, and Honohan 2009). As of 2007, Uganda had the second highest number of donor-funded microinsurance projects in the world with over 1.6 million Ugandans covered by loan-linked insurance products. These loan-linked products grew in popularity as they were offered by an increasing number of MFIs, and borrowers expected the microinsurance product to accompany their loan. The downside to the loan-linked model is that individuals have to take a loan to be insured. Opportunity International is considering the use of cell phones to provide insurance products in

Uganda. Cell phones can be used to pay premiums, submit claims, and pay claims (Roth, McCord, and Liber 2007).

Evidence from El Salvador suggests that, while remittances have a positive impact on use of deposit accounts, there is no significant impact on the demand for credit from formal institutions. Receiving remittances increased the probability of a household using a deposit account by 11 percentage points, possibly due to the necessity of a safe place to keep remittance payments. The latter effect may be due to a reduced demand for credit if the remittances represent a substitute for credit (Anzoategui, Demirguc-Kunt, and Peria 2014).

3.10 Technological and other innovations in rural finance

Innovation in financial service delivery could make it easier to connect rural households to formal institutions and technology will play an important role in the future growth of financial access. Technology to reduce costs and innovative distribution channels have been identified as the most effective risk management tools in Kenya (Njuguna 2013). More access to ATMs and other point of sales devices and advances in communication technology, such as low cost cell phones, will reduce transaction costs and increase efficiency in the delivery of financial services in rural areas (Fernando 2007). However, technological innovations can be challenging to market to rural households in developing countries.

A study in Taiwan found that trust plays an important role in mobile banking adoption. Mobile banking refers to using a mobile phone to conduct online banking, but

can also refer to a mobile banking unit, which is a group of bank staff sent from a bank branch to the rural area to serve clients. In this case, mobile banking refers to the former. The study measured a number of factors that could potentially contribute to a person's choice of adopting or not adopting mobile banking and found all but one to be significant. The significant factors include perceived relative advantage, perceived ease of use, perceived compatibility, perceived competence of the mobile banking system and those operating the system, and perceived integrity of those operating the system. The study also suggests that perceived competence has a significantly greater effect for first-time customers compared to repeat customers, demonstrating the importance of trust in expanding technological innovations in financial services (Lin 2011).

Other innovations in rural finance include establishing credit registries or issuing personal identification numbers to establish credit histories; reducing the costs of registering and repossessing collateral; or introducing legislation to support financial technology such as leasing, electronic finance, and mobile finance (Beck, Demirguc-Kunt, and Honohan (2009). Personal identification systems and public credit registers can be innovative in developing countries in the sense that they can prevent financial institutions from lending to risky borrowers and prevent poor borrowers from taking multiple loans to repay other loans when it would cause them to become over-indebted. While some rural borrowers may be able to successfully manage multiple loans, that is not true of all borrowers and over-indebtedness has been blamed for 80 suicides in one year in India (Tharoor 2011). Many developing countries, such as Uganda, have no personal identification system. Giannetti and Jentzsch (2013) recommend mandatory

identification systems and find that the result of this system has a positive effect on financial intermediation and access.

More specifically, research has shown that bank lending to the private sector is greater, and the credit risk lower, in countries with a more established information sharing system. This is due, in part, to the increase of information that banks have about borrowers' characteristics and default history, which improves the prediction of the probability of repayment. It is also due to the increased incentive of borrowers to repay by making their credit history available to other potential lenders. In addition, information sharing can also lower interest rates by forcing banks to compete for clients (Japelli and Pagano 2002).

The Unique Identification Authority of India (UIDAI), formed in 2009, is in the process of rolling out a program that will assign a unique identification number to all Indian residents, in addition to biometric technology that will identify finger prints and iris scans. Six hundred million people have signed up for the program and 560 million have been assigned an identification number. There are 58 million bank accounts linked to a UIDAI number, compared with two million a year ago, and UIDAI projects that 150 million bank accounts will be linked by the end of 2014. The system made it easier for rural Indians to open a bank account when the Reserve Bank of India began allowing finger print identification in place of government documentation, and the Committee on Comprehensive Financial Services for Small Businesses and Low Income Households is now proposing universal bank accounts within two years (Chen 2014).

3.11 Financial literacy

The importance of financial literacy among the rural poor has been widely discussed due to the belief that limited financial literacy is a crucial barrier to demand for financial products and services. It is true that if individuals are not familiar with a product they are not likely to demand that product (Cole, Sampson, and Zia 2011). From a household survey in Indonesia and India, Cole, Sampson, and Zia (2011) find that financial literacy is a strong and consistent indicator of demand for financial services. Lack of knowledge of how banks work was the second most common reason reported by households for not having a bank account. While only 31% of respondents reported knowing the requirements for opening a bank account, 74% expressed interest in attending a free financial literacy training session.

Akpandjar, Quartey, and Abor (2013) included six financial literacy questions on their survey in Ghana, from which they calculate a financial literacy score. They found that, among rural households, a unit increase in the financial literacy score increased the probability to demand financial services by 9%. A different study in Ghana concludes that increasing borrowers' financial literacy, and more specifically, debt related literacy, may decrease the risk of over-indebtedness. Their results indicate that an infinitesimally small increase in a borrowers debt literacy score corresponds with a 0.2% lower likelihood of over-indebtedness (Schicks 2014).

Financial literacy programs are widespread in both developed and developing countries. The role of financial literacy training in developing countries may be crucial to households accessing financial products and services that they did not have access to

previously. However, those offering the training should take great care in understanding the social and cultural setting in which they are operating, so that the training is designed to align with social and cultural norms. Moreover, financial literacy training of citizens should never be a replacement for good government policy as it relates to finance (Guerin 2012).

3.12 A Brief History of Linkage Banking

Banks and MFIs opened in rural areas, in part, to provide affordable credit, and moneylenders were often viewed as usurious. Research has shown that moneylenders' cost of lending is high and the high interest rate may reflect the cost of lending to high risk borrowers (Aleem 1990). More recently, researchers are starting to explore the potential of moneylenders as linkage partners in formal financial services delivery.

Varghese (2005) proposes a linkage between banks and moneylenders in rural India. In the proposed model, borrowers would take a loan from the moneylender, who will then repay the bank. Where the bank would choose not to lend for a project with a high expected return due to lack of information, the moneylender would have access to that information and choose to lend. When comparing the linkage model to a model with bank competition or a monopoly bank, the model is found to improve on both in terms of borrower and social welfare by increasing the bank's lending space (Varghese 2005). However, a linkage program does not need to be strictly between a bank and moneylender. Many linkages exist between banks and agriculture extension agents, traders, merchants, shop keepers, and NGOs (Fuentes 1996).

The Eastern Corridor Livelihood Security Promotion Program (ECLSPP) in Ghana serves as an example of how an NGO can act as a financial linkage partner. The SEND Foundation helped establish credit unions which are community member-owned financial cooperatives. Because economically-active, low-income women often do not meet the financial requirements to join the credit union, a second program was established to work with the women until they are able to join. This part of the program helps women form solidarity groups which can access credit union loans subsidized by SEND Foundation to help them grow their businesses until they are able to join the credit union. As of 2012, 2,420 women had opened an account at the credit union, compared with 279 at the end of 2009 (O'Brien and Haruna 2013).

Other results of ECLSPP from interviews conducted by O'Brien and Haruna in 2011 and 2012 include the following: the percentage of women expanding their business increased from 30% to 49%; the percentage of women saving money increased from 24% to 40%; the percentage of women contributing to their household expenditure increased from 12% to 45%; the percentage of women contributing to household decisions increased from 36% to 54%; the percentage of women with business skills increased from 42% to 56%; and the percentage of women involved in leadership matters increased from 20% to 46%.

As in Uganda, NGOs and NGO-MFIs in Ghana cannot collect deposits from the public, but they can train community cooperatives, such as savings groups and credit unions, to manage their own finances. The NGO partner can offer a variety of other programs and services. For example, SEND Foundation spent a lot of time mentoring the

credit union board members for ECLSPP, and also offered non-financial services, including reproductive health and HIV/AIDS education, enterprise development support, and mentoring support. The NGO-MFI in this case recognizes the importance of relationships with other partners, mentioning MFIs, banks, and business development organizations, among others, as potential linkage partners (O'Brien and Haruna 2013).

The remainder of this section is a brief review of linkage banking projects in Latin America, Asia, and Africa, followed by a summary of the CARE linkage banking program currently operating in ten districts in Uganda.

3.12.1 Formal deposit account linkages in Mexico 1992 (Aportela 1999)

Because low-income households often use savings for emergencies and unexpected investment opportunities, liquidity may be more important to them than interest rates. A paper assessing the impact of increasing financial access on savings in Mexico by studying the effects of two formal savings products finds this to be true. One program required monthly compulsory deposits and clients could not access their savings before a maturity date of either 12, 24, or 36 months. The second program requires a 50 peso minimum balance, but has no compulsory savings requirement, and offers a slightly lower interest rate than program one. Both programs charge no fees. The second program was found to be more popular, showing a preference for liquidity. The study also found that the expansion of these formal savings programs in 1993 increased the average savings rate of participating households by three to five percent and that the effect was higher for low-income households who were targeted by the program (Aportela 1999).

3.12.2 Savings group/bank linkage in Tajikistan, 2009 (Ledgerwood and Wilson 2013)

In 2009, the Mountain Societies Development Support Programme (MSDSP, created by the Aga Khan Foundation) initiated the Community-Based Savings Group Program (CBSG), modeled after savings groups in Africa and South Asia. The model consists of bi-weekly meetings where members contribute deposits which they lend out to members, usually at 3% interest. By the end of 2012, average savings per member was $50 and some CBSGs had accumulated so much capital that MSDSP began linking them with a local bank to deposit excess savings. Ledgerwood and Wilson conclude by discussing the importance of involving a variety of financial service providers that include both community-based and formal institutions. The CBSGs ability to accumulate enough capital from frequent, but small, contributions represents an approach which can be recreated by stakeholders everywhere to increase financial inclusion (Ledgerwood and Wilson 2013).

3.12.3 Self-help group/formal bank linkage in Indonesia and India, 1988 and 1992 (Seibel 2007, unless otherwise specified)

One of the earlier attempts at linking informal savings groups and banks was initially developed in Africa, but after finding that the policy environment was not conducive to the program, it was attempted in Asia instead. This program included the following elements: building on the existing formal and informal financial infrastructure; savings-based credit linkages of self-help groups (SHGs) with banks; informal groups holding savings and credit accounts in banks; NGOs as social intermediaries; and flexible

models of cooperation between SHGs, NGOs, and banks as autonomous business partners, each with its own interest rate margin to cover its transaction costs. The first program was rolled out in Indonesia in 1988, and ten years later, 800 rural banks and 16,000 SHGs were involved.

However, this model found the greatest success in India, where the National Bank for Agriculture and Rural Development (NABARD) started a highly successful pilot program in 1992. NABARD also used the existing infrastructure of SHGs and formal banks, made the program savings-led rather than credit-led, used banks for credit provision rather than donor supported organizations, and allowed the rural poor to have a say in the design of the program. NGOs played a big role in the program, helping the rural poor organize into SHGs and helping the SHGs learn how to function properly.

At the end of a four year pilot period, almost 5,000 SHGs with 80,000 members had been linked to 80 banks. The program was found to be working well for very poor women, especially those living in resource-poor areas. Income and savings had both increased, even for the poorest, while transaction costs decreased for both the banks and the SHGs. The participants in the program had a repayment rate of almost 100%, in contrast with the 50%-60% repayment rate normally found in agricultural credit. By 2005, the program had reached 1.6 million informal savings groups and SHGs, with 3,000 governmental institutions and NGOs facilitating the start of SHGs and connecting those SHGs to 35,000 bank branches (Seibel 2007).

A separate paper by Sangeeta, Arora, and Meenu (2012) finds that all public sector banks in Punjab are involved to some extent in microfinance, offering a variety of

services including savings, credit, and microinsurance. Interestingly, the banks lend to individuals, SHGs, or both, but prefer individuals, citing a lack of trust between SHG members. The authors recommend that bankers work with NGOs to prevent this problem, which suggests that some banks may not be taking advantage of NGOs knowledge and information advantage regarding SHGs. Interviews with bankers revealed that 62% of banks have repayment rates of over 90% in the microfinance sector and the other 38% have repayment rates between 60% and 90%, indicating that it can be worthwhile for commercial banks to lend to the poor when adequate funds are provided at appropriate times to coincide with their business cycle (Sangeeta, Arora, and Meenu 2012).

3.12.4 Nigeria, Zimbabwe, and Burkina Faso (Seibel 1999)

As mentioned in the previous linkage example, one of the first linkage models was originally developed in Africa in the 1980s before being implemented in Asia. Despite the fact that Africa was not prepared to support a linkage banking program at that time, a project in Eastern Nigeria was started as a result of the development of this model. The linkage project, coordinated by Central Bank of Nigeria, resulted in 313 groups linked to 54 bank branches. While banks in Nigeria were being forced to lend to rural clients through compulsory rural lending (at the time of this program only; compulsory lending is no longer a policy in Nigeria), they do recognize this linkage model to be more effective and efficient than other approaches.

Linkage projects followed in Zimbabwe and Burkina Faso. The Zimbabwe program was started by the Agricultural Finance Corporation (AFC), which directed its

retail lending through more than 1,000 SHGs. AFC saw repayment rates increase from 50% to 86% and expected further improvements. They began partnering with NGOs to provide guidance, consulting, and support to groups. The Burkina Faso program was initiated by Caisse Nationale du Credit Agricole (CNCA), which identified 185 groups for pilot-testing in 1993. CNCA collected savings deposits as collateral and then refinanced the groups as autonomous financial intermediaries who would then on-lend to their own members. This program also saw improvements in the repayment rate and resulted in 50% of CNCA's loan portfolio represented by village groups and cooperatives.

3.12.5 Tontine/commercial bank linkage in Senegal (Aliber 2002)

Experiments in West Africa in the 1980s attempted to link savings groups to commercial banks (Aliber 2002). An attempt to link Tontines (a type of savings group in West Africa) to commercial banks in Senegal showed that commercial banks were not prepared to make the necessary adjustments and innovations to deliver financial services on a small scale at low cost. Another study of this program showed that tontines were not able to keep the minimum deposit required by the bank and that the tontines were not satisfied with the length of time it took to access their money from the bank (Balkenhol and Gueye 1994). Minimum deposit requirements are often cited as a barrier to access, and offering a deposit account with no minimum deposit requirement is one adjustment that can be made to improve financial access.

3.12.6 Self-help group/bank linkage in South Africa (Schoombee 1999)

Schoombee (1999) discusses the following four types of linkages in South Africa:
Model 1: This is the most common model, where banks lend to an NGO, which then lends the funds to the self-help group.
Model 2: Linking self-help groups directly to banks, with the help of an NGO. The NGO helps the bank by forming new self-help groups to potentially link to the bank and by advising the bank on SHG performance.
Model 3: Linking individual members of an SHG to the bank, with NGO and SHG involvement. This model should only be used following the successful implementation of model two.
Model 4: Linking SHGs and banks directly with no NGO involvement.

The models were ranked by bank transaction costs as a percentage of loans and by repayment rates, with model two ranking best by both measures. Model two had transaction costs at 2.19% of loans and a repayment rate of 97%. Model four failed, likely due to the inability of the bank to identify borrowers, demonstrating the importance of NGO involvement. The NGO is typically closer to the prospective borrowers than the bank, and therefore, the NGO will do a better job identifying borrowers.

Schoombee (1999) offers recommendations regarding some common challenges of bank linkage programs. The bank should keep in mind that SHGs and informal savings groups are based on trust and reciprocity and avoid measures that will interfere with group cohesion, such as arbitrarily adding members to an existing group. Regarding the low returns from borrowing to the rural poor, the bank should be able to charge cost-

covering rates of interest, while accepting that lending to this market will be more costly than lending to average bank customers.

There is a real need for formal bank services for micro-entrepreneurs in South Africa and the linkage banking model is the best option due to its higher likelihood to be profitable, compared with other models. The high risk and costs associated with borrowing to this market is taken from the bank and is the responsibility of the NGO, which has an advantage of information access, close proximity, and knowledge of the rural market (Schoombee 1999).

3.12.7 Stokvel/commercial bank linkage in South Africa (Verhoef 2001, unless otherwise noted)

A number of commercial banks in South Africa introduced savings accounts for savings groups in the late 1980s to mid 1990s, although most of these programs have been discontinued (Aliber 2002). The savings groups, called stokvels, started in the 1930s and continued to grow in both popularity and number. By 1988, a stokvel umbrella organization was established (NASASA) and by 1993 it was estimated that almost 280 million Rand in stokvel savings was invested in commercial banks. NASASA argued that there was also demand for loan products, which resulted in commercial bank offerings of loan products and burial insurance, in addition to savings accounts to stokvels, which were met with mixed success.

The first three savings products developed for stokvels were offered by three different formal financial institutions with a variety of terms, such as low or no start-up

fee, no minimum balance, and few or no fees. The first loan product offered to stokvels, the People's Benefit Scheme, was created by a partnership between First National Bank and the Development Bank of Southern Africa. However, by 1995, both partners withdrew from the product due to lack of demand, which is believed to be due to lack of trust in banks on the part of stokvel members. The failure of this program reinforces the idea that a program offering formal financial services to the poor should be both savings-led and demand-driven.

In addition to the savings and credit programs, a funeral insurance product was introduced for the stokvels and was found to be quite successful (Verhoef 2001).

3.13 CARE linkage banking program

The following is a summary of CARE's Banking on Change program in Uganda. All information from this section is from "Connecting the World's Poorest People to the Global Economy: New Models for Linking Savings Groups to Formal Financial Services" from CARE International and UKAID (2013), unless otherwise specified.

3.13.1 Village Savings and Loan Associations (VSLA)

CARE's Village Savings and Loan Association (VSLA) program is one of the world's most effective community savings group programs. It allows members to save, access small loans, and build up their own small insurance fund for emergencies. Since its beginning in 1991, the VSLA program has reached over three million people in 26 African countries and approximately three million people beyond Africa.

The basic principle is that a self-selected group of people come together to form a VSLA and become members. They save money each week in the form of shares and then use the savings fund they accumulate to finance loans to each other at an interest rate decided on by the VSLA members. The insurance fund can provide small, interest-free, short term loans for emergencies. At the end of an agreed upon period of time, the group will share out the accumulated savings and interest to its members and begin another savings cycle.

The VSLA methodology relies on a carefully structured system of training. The group is assisted in their initial formation, election of group officials, and agreement on group mechanisms such as amount of weekly savings, interest rate, loan terms, and insurance fund. After this initial training, the group is supervised by CARE or another implementing partner organization. One critical success factor of CARE's VSLA program is the ability for communities to manage the VSLA independently. A study in Zanzibar in 2006 showed that, of 25 VSLA groups, all but one continued to operate independently more than six years after CARE withdrew direct support.

As groups mature, they may outgrow the savings group model and express interest in accessing financial products from external institutions. Many members, after accumulating a large savings, desire the security provided by a bank account, while others want access to loans larger than their savings group can provide.

3.13.2 Linkage banking program

> "CARE has called elsewhere for a global push to expand access to financial services for the poor, including through policy changes that promote financial literacy training and amend national regulatory frameworks to encourage the use of savings groups as a springboard to financial inclusion. Whether such clusters of "ready-made customers" offer a commercially viable market for providers is not yet clear, but initial results offer hope that, with mobile banking, sustainable models are within reach."

Savings and credit product in partnership with Barclays

CARE has rolled out eight pilot initiatives in five African countries beginning in 2008, two of which were rolled out in Uganda. One of these is part of the Banking on Change partnership between CARE, Barclays, and Plan International. The process of designing an appropriate program involved identifying suitable groups by using CARE's Linkage Readiness Assessment Tool, briefing bank staff on working with savings groups, and training savings group members on using financial services and, more specifically, the Barclays product.

After a needs assessment, CARE and Barclays decided to start with savings accounts rather than credit. The product offered is a group current account with no account set up or monthly fees, and no minimum balance requirement. The overall target

was exceeded, with over 400 groups opening an account with Barclays and deposits of almost $120,000 by the end of September 2012.

After building trust, the group members started requesting access to credit and Barclays Uganda offered a credit product targeted at savings groups. The product is an overdraft facility allowing customers to borrow only the amount they need rather than pre-determined fixed loan amounts. The product is available only to groups who already use a savings account and is viewed as complementary to the savings account, rather than a replacement. This product was also accompanied by extensive financial literacy training from CARE.

The main challenge in connecting future groups to this program is distance to the bank branch. Barclays is exploring the potential of mobile banking to expand outreach to these groups.

Funeral insurance product in partnership with Jubilee Insurance

In 2009, CARE conducted a needs assessment among savings groups in Uganda to determine their most wanted financial service and found that the top priority was funeral insurance. The initial pilot failed after the implementing partner realized they set the premium too low to be viable and pulled out of the program.

The second attempt at offering funeral insurance is in partnership with Jubilee Insurance and has been more successful. The product covers pre-existing conditions for up to eight family members and is sold at a premium of $13.60 per year (compared to

$3.15 per year in the initial pilot). Despite the price increase, the product continued to sell.

One customer noted that when her husband died, she was able to cover the cost of the funeral without selling her land, which she would have otherwise had to do in the absence of the Jubilee Insurance product. CARE also believes that the product could have benefits beyond simply covering the cost of the funeral. A study in 2011 showed that insured group members are more likely to invest their savings in productive activities than those who are uninsured. The argument is that group members feel safer knowing that the funeral expenses will be covered and therefore do not feel as compelled to keep their savings in cash. Since this is only a pilot project in its early stages, future research would need to be conducted to measure this potential effect.

3.13.3 Scaling up

Barclays has found that savings groups can provide enough business to become financially viable at some bank branches and is beginning to view them as their "individual clients of the future." One surprising outcome of the pilot projects is the demand for individual savings accounts, which has prompted Barclays to offer these accounts to a large number of its VSLA clients.

> "According to Michael Kaddu, Head of Corporate Affairs at Barclays in Uganda, the partnership with CARE started as a largely philanthropic venture, but it is now moving towards "a core business stream"."

Despite positive outcomes, some key challenges remain. These include distance to the bank branch, the risk of cash in transit, limited knowledge of savings groups from bank staff, limited knowledge of commercial banks from savings group members, low literacy levels among savings group members, and the relatively large amount of time it takes bank staff to work with rural clients. Many of these challenges could be met, in part, with appropriate training and the increasing use of mobile banking.

This savings-led and demand-driven program from CARE aims to meet the demand for savings and insurance products by connecting the rural poor to commercial financial service providers. The potential to serve Uganda's poorest households by providing the appropriate training, support, and a variety of financial and risk management tools should not be ignored, as it could lift these households out of poverty. These are households who may otherwise go completely un-served by MFIs, as many of them are not entrepreneurs, but subsistence farmers.

The success of the linkage banking programs discussed above and the potential to learn from their shortcomings provides hope that NGO-commercial bank linkages can have a real impact on the lives of the rural poor. Lessons that can be taken from these programs are the importance of financial literacy training for savings groups to prepare them for formal financial access; the use of an NGO as a linkage partner to provide information and training to bank staff and identify potential bank clients; the clients' preference for the liquidity provided by voluntary rather than compulsory savings; the importance of deposit accounts with no minimum balance requirement and no fees to

reduce barriers to entry; and the ability of the rural poor to accumulate capital by contributing small savings deposits over time through membership in a VSLA.

Although these models had limited success in African countries in the 1980s, most countries have since experienced financial sector liberalization, and the same program that did not work in the 1980s may be very successful today. This, along with technological innovations that continue to reduce transaction costs in rural financial service delivery, may provide the appropriate climate for universal financial inclusion. If the CARE program in Uganda continues to be successful, it will provide a blueprint for linkage banking programs in other developing countries.

CHAPTER THREE

METHODOLOGY

The objectives of this thesis are to 1) estimate the overall distributions of household characteristics, 2) estimate the overall distributions of access to savings and credit products, and 3) determine the relationship between household characteristics and access to savings and credit products from various institution types. Institutions can be formal (banks, micro-deposit taking institutions, government agencies, or credit institutions), semi-formal (microfinance institutions (MFIs), credit unions, savings and credit cooperatives (SACCOs), or NGOs), or informal (informal savings groups, relatives, friends, or moneylenders). Objectives 1 and 2 were carried out to better understand the survey and sample before observing the relationships in objective 3. This chapter will present and discuss the research context, the survey instruments, procedures used in data collection, and the data analysis.

There are programs in Uganda that attempt to connect the rural poor to formal finance by first mobilizing them into savings groups to accumulate capital, providing financial literacy training, and then connecting them to formal banks. The goal of this thesis is to provide a direction for future linkage banking programs by finding which characteristics should be targeted by this type of program.

Panel data published by World Bank from the Uganda National Household Survey (UNHS) collected in 2005/06 and the Uganda National Panel Survey (UNPS) in 2009/10 are used in the analysis. The 2009/10 sample consists of 3,123 randomly selected households. These households are distributed over 322 enumeration areas which

were selected from the original 783 enumeration areas from the 2005/06 survey. Beginning with the 2009/10 survey, the schedule for interviewing households is twice a year with six months between visits.

All regions of Uganda are included in the sample and are divided into six strata: Kampala City, Other Urban Areas, Central Rural, Eastern Rural, Western Rural, and Northern Rural. Within each stratum, the UNPS enumeration areas were selected from the UNHS 2005/06 enumeration areas with equal probability, and with implicit stratification by urban/rural and district (in this order), except for the rural portions of ten districts that were oversampled by the UNHS 2005/06 survey. In these districts, the probabilities were deflated to bring them back to the levels originally intended. Since internally displaced persons (IDP) camps are now mostly unoccupied, the extra enumeration areas in IDP camps are not a part of the UNPS subsample (Uganda Bureau of Statistics 2012).

The 2005/06 survey included four questionnaires: Household Questionnaire, Fisheries Questionnaire, Agriculture Questionnaire, and Community Questionnaire. In 2009/10, the survey included a Women Questionnaire, but did not include a Fisheries Questionnaire. The Household, Agriculture, and Community Questionnaires were still included. For this thesis, only the Household Questionnaire was used.

We do not have access to the identity of the participants, but we have a unique household identifier for each household and a unique personal identifier for each individual that is a member of a household, and can identify the region and district of each household. The survey is divided into sections as follows.

The Household Questionnaire is divided into several sections. Section 2, the household roster, includes basic information, such as age, sex, and marital status, section 3 collects general information about household members; and section 4 collects information about the level of education of all household members above the age of five. Sections 5, 6, and 7 collect information about health, nutrition, and disability. Sections 8, 11, and 12 collect information on type of income generating activities of each member of the household (agriculture, wage labor, business enterprise, etc.), the amount of time spent in each activity, and the amount of income from each activity.

Sections 9, 10, 14, and 17 collect information about the welfare and poverty status of the household. This includes information such as housing conditions, energy use, and household assets. Section 13, Financial Services, will be the main focus of this thesis. This section includes information about access to and usage of savings, credit, and insurance from a variety of sources, such as credit unions, microfinance institutions, savings and credit cooperatives, and commercial banks.

The three remaining sections, 15, 16, and 18, cover household consumption expenditure, household shocks such as drought, flood, or death of a household member, coping strategies for household shocks, and transport services, respectively.

In this thesis the results of the questionnaire are used to estimate the overall distributions of household characteristic and access to saving and credit, and then chi-squared tests are used to find significant relationships between the household characteristics and access to financial products from a variety of formal, semi-formal, and informal institutions. Formal institutions are commercial banks, government agencies,

credit institutions, and micro-deposit taking institutions; semi-formal institutions include MFIs, credit unions, and NGOs; and informal institutions include cooperatives, employers, SACCOs, informal savings groups, relatives, friends, and moneylenders. The household characteristics were chosen based on previous research, and include the following.

The first four variables are characteristics of the household head. These are age, gender, marital status, and education level. The survey includes age as a continuous variable. For the chi-squared analysis, we grouped age into the following ranges, based on age categories of previous research:

- 15-24
- 25-44
- 45-64
- 65 and older

We expect to find that the age group 15-24 is more excluded from formal savings products due to lack of reliable income or inability to pay the required fees and more excluded from informal savings groups due to lack of trust from community members. We expect to find that the age group 65 and older to be more excluded from savings products, most likely due to self-exclusion. For credit products, we expect to see that the age group 15-24 is more excluded from all institution types due to lack of collateral and trust. We expect that the age group 65 and older will be more excluded from all institution types due to self-exclusion. This age group is less likely to need a loan for productive purposes and may be less able to repay a loan.

In terms of savings at formal institutions, women may be more excluded than men due to lack of income and financial literacy. We might find that women are more likely to be included in informal savings groups because they are viewed as being more trustworthy and more likely to save compared with men, who may be viewed by the community as less likely to make the weekly savings contribution or make loan repayments on time. In terms of credit from formal institutions, we expect to find that women are more excluded due to lack of income or collateral. Women may also be excluded from credit if their household financial decisions are made by their husband.

People who are married are more likely to have a second adult income earner or potential income earner in the household. Therefore, we expect to find that households where the head is married to have greater access to savings and credit products from any institution type. Marital status includes the following categories directly from the survey:

- Married monogamously
- Married polygamous
- Separated/divorced
- Widow/widower
- Never married

The education system in Uganda includes seven years of primary school, six years of secondary school, and three to five years of post-secondary education. Secondary school is divided into four years of lower secondary (senior one through senior four) and two years of upper secondary (senior five and senior six). Students typically start primary

school at age five or six. In the survey, education includes 21 levels, which we divided into the following categories for the chi-squared analysis:

- Some schooling but did not complete primary one (P.1)
- Completed primary one, two, three, or four (P.1 – P.4)
- Completed primary five, six, or seven (P.5, P.6, or P.7)
- Completed senior one, two, or three (S.1, S.2, or S.3)
- Completed senior four, five, or six, or higher education (S.4 or higher education)
- Other or do not know

In terms of savings, we expect to find the less educated more likely to be excluded at every level due to lack of financial literacy. In terms of informal savings group, this may be due to perceived illiteracy by the community rather than actual financial illiteracy. In terms of credit, we expect to see less educated more likely to be excluded from all institution types due to lack of financial literacy.

The fifth variable is household size. In terms of savings, we expect that larger households are relatively poor compared with smaller households and may be more excluded from formal savings products. Deposit accounts at commercial banks may charge a fee for deposits that may be too high to make deposits of less than one dollar at a time worthwhile, and they may also have a minimum balance requirement that cannot be met by some households. However, if a majority of household members are engaged in income generating activities, larger households may have more money to save. We expect that the former effect will be greater than the latter and that larger households will be more excluded from savings products at formal institutions. Large households may be

less excluded from access to savings with an informal savings group if their family is well known and respected in the community, although we don't expect to find a difference between large and small households in this respect.

In terms of credit, we expect that the effect from more household members engaged in income generating activities will be large enough that larger households will be less excluded from credit from any institution type. However, this will also depend on whether the household lives in a rural or urban area and what type of income generating activities the household is engaged in.

The survey includes household size as a continuous variable. For our analysis, we used the following categories from Schreiner's (2011) poverty scorecard for Uganda:

- More than five household members
- Four or five household members
- Three household members
- Two household members
- One household member

The sixth variable is an indicator variable for whether the household resides in an urban or rural area. Rural households are expected to be more excluded from formal financial institutions for both credit and savings because of distance to the branch, cost of traveling to the branch, and illiteracy. However, they are expected to be less excluded from informal financial institutions because many of these institutions are designed to serve rural households and are more likely to have a rural branch. Specifically, we expect

to see rural households with greater access to both savings and credit from informal savings groups since these community groups tend to be concentrated in rural areas.

The seventh variable is an indicator variable for the type of shocks experienced by the household. We expect to find that households who have experienced certain shocks in the last 12 months are less likely to have access to savings from any source. Shocks such as drought, flood, fire, or death or illness of a household head or other income earner can be costly to a household and are likely to cause them to deplete any savings in the absence of an insurance policy. Similarly, we would expect that households that are particularly vulnerable to any of these shocks are more excluded from informal credit because the lender may not trust them to repay the loan in the event that they do experience the shock. This would likely cause them to divert a loan intended for productive purposes to costs associated with recovery from the shock event. However, we expect to find that these households are less excluded from credit from informal savings groups and other informal sources. Informal savings groups are designed specifically for vulnerable households and often include a small emergency loan fund which acts as an insurance policy for its members.

The eighth and ninth variables are type of asset and value of assets. The asset values from 2009/10 are deflated to 2005 shilling amounts for comparison purposes. Asset value is divided into the following five classes:

- Zero to one million shillings (approximately 0 to $380)
- One to two million shillings (approximately $380 to $760)
- Two to three million shillings (approximately $760 to $1140)

- Three to four million shillings (approximately $1140 to $1520)
- Four to five million shillings (approximately $1520 to $1900)
- More than five million shillings

We expect to find that households who own assets that hold value may be more excluded from savings as the investment in assets may serve as a substitute for savings. In terms of asset value, we expect to see those in the highest asset class to be less excluded from savings products from any source. For households in the lower asset value classes, we expect to see that they are more excluded from formal sources, but less excluded from informal sources of savings products. However, we expect to find that households who own large assets such as a house, land, or motor vehicle may be less excluded from formal savings because these are likely to be wealthier and more financially literate households. We also expect households who own income generating assets to be less excluded from savings products from any source.

In terms of credit, we expect that households who own valuable assets, income generating assets, or are in a relatively high asset value class to be less excluded from formal sources of credit. For informal credit sources, we may not find the same relationship, as many of these sources do not require traditional collateral.

The last variable indicates the most important source of income for a household and has the following categories from the survey:

- Subsistence farming
- Commercial farming
- Wage employment

- Non-agricultural enterprises
- Property income
- Transfers (pension, allowances, social security benefits)
- Remittances
- Organizational support (food aid, World Food Programme, NGOs, etc)
- Other (specify)

We expect to find that households that rely on subsistence farming for their main income source are more excluded from formal financial institutions for credit and savings due to seasonal income flow, low income, and distance to the bank branch. We expect to find that these households are less excluded from informal savings groups and other sources of informal and semi-formal credit. Some SACCOs serve mainly farmers and many informal savings groups are formed as farmers' cooperatives.

We expect to find that households whose main source of income is from wage employment are less excluded from formal sources of credit because they have a regular income source which may cause the bank to find them more trustworthy.

For households who rely mainly on remittance payments for their income, we expect to find that they are less excluded from informal savings. These are likely to be poor families who are likely to be excluded from formal savings due to high fees and minimum savings requirements; however, they are likely to need a safe place to keep their remittance payments and we therefore expect to find they are less excluded from informal and semi-formal savings products. In terms of credit, we expect to find that

these households are more excluded from all sources of credit due to self-exclusion, since the remittance payments may act as a substitute for credit.

Access was measured by a set of indicator variables for credit and savings sources from 2005/06 and 2009/10, where 1=yes and 2=no, as follows.

Savings_05 is an indicator variable for whether someone in the household had a savings account or not in 2005/06. Savings was not broken down into separate institutions in the 2005/06 survey.

Credit access for 2005/06 includes the following indicator variables: bank_05, MFI_05, ngo_05, coop_05 (cooperatives), landlord_05, employer_05, localGroup_05, relative_05, friend_05, moneylender_05, and other_05.

Savings access for 2009/10 is measured by the following indicator variables: creditUnionMFI (credit unions, savings associations, or MFI), SACCO, informalSavGroup (savings groups), Formal, and Bank. Bank has been dropped from the analysis due to a low response rate.

Access to credit in 2009/10 is measured by the following indicator variables: bankLoan, govAgencyLoan, creditUnionLoan, MFILoan, employerLoan, SACCOsavGroupLoan (loan from a SACCO or a savings group), friendRelLoan (loan from friend or relative, which was combined into one question in the 2009/10 survey), and moneylenderLoan.

This chapter has explained the methods used in analyzing the relationship between household characteristics and access to savings and credit by institution type. The next chapter presents the distributions of household characteristics and the

distributions of access to savings and credit products. It concludes by reporting the results obtained from chi-square tests to determine the relationship between household characteristics and access to savings and credit products from the various institution types.

CHAPTER FOUR

RESULTS

The study examined household characteristics and their effect on access to formal finance. This chapter first presents a description of the relevant household characteristics followed by the general results of credit and savings usage by type of institution. It then presents the effects of the household characteristic variables on savings and credit usage. The household characteristics we tested include age, gender, marital status, and education level of the household head; household size; whether the household resides in a rural or urban location; types of household shocks experienced; asset ownership and value; and main income source.

4.1 Household characteristics

Over half (0.532 +/- 0.009 in 2005/06 and 0.509 +/- 0.009 in 2009/10) of household heads in our sample are in the age group 25-44, and over one quarter of household heads are between ages 45-64 (0.267 +/- 0.008 in 2005/06 and 0.319 +/- 0.009 in 2009/10). Over half are in monogamous marriages (0.544 +/- 0.009 in 2005/06 and 0.545 +/- 0.009 in 2009/10), just over 18% are polygamous (0.185 +/- 0.007 in 2005/06 and 0.186 +/- 0.007 in 2009/10), and over 70% are male (0.719 +/- 0.008 in 2009/10). About 40% of household heads have completed either primary levels five, six, or seven (0.409 +/- 0.010 in 2005/06 and 0.386 +/- 0.010 in 2009/10), and just over 20% have completed senior level four or higher education (0.206 +/- 0.008 in 2005/06 and 0.207 +/- 0.009 in 2009/10).

Table 4.1. Age of Household Head, 2005/06 (N=3117)

Age Category of Household Head	Proportion	Std Error for Proportion	95% CL for Proportion
15-24	0.097	0.005	(0.087, 0.108)
25-44	0.532	0.009	(0.515, 0.550)
45-64	0.267	0.008	(0.252, 0.283)
65 or older	0.103	0.005	(0.092, 0.114)

Table 4.2. Marital Status of Household Head, 2005/06 (N=3117)

Marital Status of Household Head	Proportion	Std Error for Proportion	95% CL for Proportion
Married Monogamously	0.544	0.009	(0.527, 0.562)
Married Polygamous	0.185	0.007	(0.172, 0.199)
Divorced or Separated	0.082	0.005	(0.072, 0.092)
Widow or Widower	0.121	0.006	(0.109, 0.132)
Never Married	0.067	0.004	(0.059, 0.076)

Table 4.3. Education Level of Household Head, 2005/06 (N=2486)

Education of Household Head	Proportion	Std Error for Proportion	95% CL for Proportion
Some school but did not finish P.1	0.006	0.002	(0.003, 0.009)
P.1 through P.4	0.238	0.009	(0.221, 0.255)
P.5, P.6, or P.7	0.409	0.010	(0.389, 0.428)
S.1, S.2, or S.3	0.118	0.006	(0.106, 0.131)
S.4 or Higher	0.206	0.008	(0.190, 0.221)
Other or Do Not Know	0.023	0.003	(0.017, 0.029)

Table 4.4. Age and Marital Status of Household Head, 2009/10 (N=2969)

Age Category of Household Head	Proportion	Std Error for Proportion	95% CL for Proportion
15-24	0.042	0.004	(0.035, 0.049)
25-44	0.509	0.009	(0.491, 0.527)
45-64	0.319	0.009	(0.303, 0.336)
65 or older	0.130	0.006	(0.118, 0.142)

Table 4.5. Marital Status of Household Head, 2009/10 (N=2969)

Marital Status of Household Head	Proportion	Std Error for Proportion	95% CL for Proportion
Married Monogamously	0.545	0.009	(0.527, 0.563)
Married Polygamous	0.186	0.007	(0.172, 0.200)
Divorced or Separated	0.095	0.005	(0.084, 0.106)
Widow or Widower	0.143	0.006	(0.130, 0.155)
Never Married	0.032	0.003	(0.026, 0.038)

Table 4.6. Gender of Household Head, 2009/10 (N=2975)

Gender	Proportion	Std Error for Proportion	95% CL for Proportion
Female	0.281	0.008	(0.265, 0.297)
Male	0.719	0.008	(0.703, 0.735)

Table 4.7. Education Level of Household Head, 2009/10 (N=2236)

Education Level	Proportion	Std Error for Proportion	95% CL for Proportion
Some school but did not finish P.1	0.012	0.002	(0.008, 0.017)
P.1 through P.4	0.262	0.009	(0.244, 0.280)
P.5, P.6, or P.7	0.386	0.010	(0.365, 0.406)
S.1, S.2, or S.3	0.102	0.006	(0.089, 0.115)
S.4 or higher	0.207	0.009	(0.190, 0.224)
Other or Do Not know	0.031	0.004	(0.024, 0.039)

Almost three-quarters of households in the sample are located in rural areas (0.725 +/- 0.008 in 2005/06 and 0.742 +/- 0.008 in 2009/10). About half of our sample has five or less household members and about half have more than five members (0.478 +/- 0.009 in 2005/06 and 0.569 +/- 0.009 in 2009/10). The main income source for almost half of households is subsistence farming (0.473 +/- 0.009), while less than two percent report commercial farming as their main income source (0.020 +/- 0.003). Just over 20% each report wage employment (0.219 +/- 0.008) and non-agricultural enterprises (0.211

+/- 0.008) as their main income source. Almost five percent rely on remittances as their main source (0.050 +/- 0.004), and the remaining five percent report property income (0.013 +/- 0.002), transfers (0.004 +/- 0.001), organizational support (0.003 +/- 0.001), or 'other' (0.008 +/- 0.002) as their main source of household income.

Table 4.8. Household Size, 2005/06 (N=3117)

Household Size	Proportion	Std Error for Proportion	95% CL for Proportion
1	0.091	0.005	(0.081, 0.101)
2	0.068	0.005	(0.059, 0.077)
3	0.101	0.005	(0.090, 0.112)
4 or 5	0.261	0.008	(0.246, 0.277)
More than 5	0.478	0.009	(0.461, 0.496)

Table 4.9. Rural/Urban Residence, 2005/06 (N=3123)

Rural/Urban	Proportion	Std Error for Proportion	95% CL for Proportion
Rural	0.725	0.008	(0.709, 0.740)
Urban	0.275	0.008	(0.260, 0.291)

Table 4.10. Household Size, 2009/10 (N=2975)

Household Size	Proportion	Std Error for Proportion	95% CL for Proportion
1	0.055	0.004	(0.047, 0.064)
2	0.064	0.004	(0.055, 0.073)
3	0.079	0.005	(0.069, 0.088)
4 or 5	0.233	0.008	(0.217, 0.248)
More than 5	0.569	0.009	(0.551, 0.587)

Table 4.11. Rural/Urban Residence, 2009/10 (N=2975)

Rural/Urban	Proportion	Std Error for Proportion	95% CL for Proportion
Rural	0.742	0.008	(0.726, 0.757)
Urban	0.259	0.008	(0.243, 0.274)

Table 4.12. Main Source of Household Income, 2009/10 (N=2928)

Income Source	Proportion	Std Error for Proportion	95% CL for Proportion
Commercial Farming	0.020	0.003	(0.015, 0.025)
Non-agricultural Enterprise	0.211	0.008	(0.196, 0.226)
Organizational Support	0.003	0.001	(0.001, 0.006)
Other	0.008	0.002	(0.004, 0.011)
Property Income	0.013	0.002	(0.009, 0.017)
Remittances	0.050	0.004	(0.042, 0.057)
Subsistence Farming	0.473	0.009	(0.455, 0.491)
Transfers	0.004	0.001	(0.002, 0.007)
Wage Employment	0.219	0.008	(0.204, 0.234)

Several types of household shocks were reported. The most frequently reported shock was drought or irregular rains, which accounted for over half of reported shocks in 2009/10 (0.338 +/- 0.008 in 2005/06 and 0.504 +/- 0.010 in 2009/10). Other shocks that were reported somewhat frequently include serious illness or accident of income earner (0.071 +/- 0.005) or other household member (0.070 +/- 0.005), death of a family member (0.116 +/- 0.005), or flood/hailstorm (0.117 +/- 0.005).

Table 4.13. Household Shocks, 2005/06 (N=3649)

Type of Shock	Proportion	Std Error for Proportion	95% CL for Proportion
Bad Seed Quality	0.019	0.002	(0.015, 0.024)
Civil Strife	0.074	0.004	(0.065, 0.082)
Death of Family Member	0.116	0.005	(0.106, 0.127)
Death of Household Head	0.027	0.003	(0.022, 0.032)
Fire Accident	0.029	0.003	(0.023, 0.034)
Flood/Hailstorm	0.117	0.005	(0.107, 0.127)
Injury	0.022	0.002	(0.018, 0.027)
Livestock Epidemic	0.050	0.004	(0.043, 0.057)
Other	0.030	0.003	(0.025, 0.036)
Pest Attack	0.081	0.005	(0.072, 0.089)
Robbery/Theft	0.096	0.005	(0.086, 0.105)
Drought	0.338	0.008	(0.323, 0.354)

Table 4.14. Household Shocks, 2009/10 (N=2673)

Type of Shock	Proportion	Std Error of Proportion	95% CL for Proportion
Conflict/Violence	0.013	0.002	(0.008, 0.017)
Death of Income Earner	0.010	0.002	(0.006, 0.014)
Death of Other Household Member	0.028	0.003	(0.021, 0.034)
Drought/Irregular Rains	0.504	0.010	(0.485, 0.523)
Fire	0.010	0.002	(0.006, 0.013)
Floods	0.023	0.003	(0.017, 0.029)
Landslides/Erosion	0.008	0.002	(0.005, 0.012)
Loss of Employment	0.003	0.001	(0.001, 0.006)
Other	0.038	0.004	(0.030, 0.045)
Reduction in Earnings	0.010	0.002	(0.007, 0.014)
Serious Illness of Accident of Other Household Member	0.070	0.005	(0.061, 0.080)
Serious Illness or Accident of Income Earner	0.071	0.005	(0.061, 0.081)
Theft of Agricultural Assets(crop or livestock)	0.048	0.004	(0.039, 0.056)
Theft of Money/Valuables/Non-agricultural Assets	0.040	0.004	(0.033, 0.047)
Unusually High Costs of Agricultural Inputs	0.022	0.003	(0.017, 0.028)
Unusually High Level of Crop Pest and Disease	0.051	0.004	(0.043, 0.060)
Unusually High Level of Livestock Disease	0.031	0.003	(0.024, 0.037)
Unusually Low Prices for Agricultural Output	0.020	0.003	(0.015, 0.025)

The most commonly owned household assets were a house (0.147 +/- 0.003 in 2005/06 and 0.144 +/- 0.003 in 2009/10), furniture and furnishings (0.171 +/- 0.003 and 0.185 +/- 0.003, respectively, in 2005/06, and 0.160 +/- 0.003 in 2009/10), electronic equipment (0.123 +/- 0.003 in 2005/06), radio/cassette (0.119 +/- 0.003 in 2009/10), and land (0.133 +/- 0.003 in 2009/10).

Table 4.15. Household Assets, 2005/06 (N=16333)

Asset Type	Proportion	Std Error of Proportion	95% CL for Proportion
Bednets	0.061	0.002	(0.057, 0.065)
Bicycle	0.072	0.002	(0.068, 0.076)
Electronic Equipment	0.123	0.003	(0.118, 0.128)
Furnishings	0.185	0.003	(0.179, 0.191)
Furniture	0.171	0.003	(0.165, 0.177)
Generators	0.002	0.000	(0.001, 0.002)
House	0.147	0.003	(0.141, 0.152)
Household Appliances	0.071	0.002	(0.067, 0.075)
Jewelry and Watches	0.069	0.002	(0.065, 0.073)
Mobile Phone	0.038	0.001	(0.035, 0.041)
Motorcycle	0.005	0.001	(0.004, 0.006)
Other	0.012	0.001	(0.010, 0.014)
Other Buildings	0.041	0.002	(0.038, 0.045)
Other transport equipment	0.004	0.000	(0.003, 0.005)
Solar Panel/Electric Inverters	0.001	0.000	(0.001, 0.002)

Table 4.16. Household Assets, 2009/10 (N=16236)

Asset Type	Proportion	Std Error for Proportion	95% CL for Proportion
Bicycle	0.074	0.002	(0.070, 0.078)
Boat	0.001	0.000	(0.001, 0.002)
Computer	0.005	0.001	(0.004, 0.006)
Furniture/Furnishings	0.160	0.003	(0.155, 0.166)
Generators	0.003	0.000	(0.002, 0.004)
House	0.144	0.003	(0.139, 0.150)
Household Appliances	0.134	0.001	(0.031, 0.036)
Internet Access	0.000	0.000	(0.000, 0.000)
Jewelry and Watches	0.036	0.001	(0.033, 0.039)
Land	0.133	0.003	(0.128, 0.138)
Mobile Phone	0.094	0.002	(0.089, 0.098)
Motor Vehicle	0.005	0.001	(0.004, 0.006)
Motorcycle	0.012	0.001	(0.011, 0.014)
Other Buildings	0.052	0.002	(0.048, 0.055)
Other Electronic Equipment	0.005	0.001	(0.004, 0.006)
Other Household Assets	0.023	0.001	(0.021, 0.026)
Other Transport Equipment	0.000	0.000	(0.000, 0.001)
Radio/Cassette	0.119	0.003	(0.114, 0.124)
Solar Panel/Electric Inverter	0.003	0.000	(0.002, 0.004)

Asset Type	Proportion	Std Error for Proportion	95% CL for Proportion
Television	0.023	0.001	(0.020, 0.025)
Other 1	0.053	0.002	(0.050, 0.057)
Other 2	0.020	0.001	(0.018, 0.022)

The large majority of households in the sample own assets valued between zero and one million shillings (0.734 +/- 0.009 in 2005/06). The proportion of households in each asset value class decreases as asset value increases, until the last class. The last asset class includes all households with assets valued greater than five million shillings. Although there is a slight increase in proportion here, there is still a relatively low proportion of households in this asset value class (0.105 +/- 0.006) when compared with the lowest asset value class.

Table 4.17. Asset Value, 2005/06 (N=2657)

Asset Value	Proportion	Std Error for Proportion	95% CL for Proportion
0 to 1 Million	0.734	0.009	(0.717, 0.750)
1 to 2 Million	0.081	0.005	(0.070, 0.091)
2 to 3 Million	0.040	0.004	(0.032, 0.047)
3 to 4 Million	0.026	0.003	(0.020, 0.032)
4 to 5 Million	0.016	0.002	(0.011, 0.021)
More than 5 Million	0.105	0.006	(0.093, 0.116)

In 2009/10, there is a similar pattern; however, the majority of households are in the top asset value class of over five million shillings (0.327 +/- 0.009), followed by the lowest asset value class of 0 to 1 million shillings (0.309 +/- 0.009).

Table 4.18. Asset Value, 2009/10 (N=2927)

Asset Value	Proportion	Std Error for Proportion	95% CL for Proportion
0 to 1 Million	0.309	0.009	(0.292, 0.325)
1 to 2 Million	0.155	0.007	(0.141, 0.168)
2 to 3 Million	0.093	0.005	(0.082, 0.104)
3 to 4 Million	0.065	0.005	(0.056, 0.074)
4 to 5 Million	0.052	0.004	(0.044, 0.060)
More than 5 Million	0.327	0.009	(0.310, 0.344)

4.2 Savings and Credit Usage by Institution Type

The four institutions we observed for deposit account usage are formal institution; credit union, savings association, or MFI; SACCO; or informal savings group.

In 2005/06, 16.8% (+/-0.007) of households had access to a formal savings account, which increased slightly to 17.9% (+/-0.007) in 2009/10. In 2009/10, 17.4% (+/-0.007) of households were saving with an informal group, while only 9.6% (+/-0.005) had a savings account at a credit union, savings association, or MFI and 6.6% (+/-0.005) at a SACCO.

Table 4.19. Formal Savings Account, 2005/06 (N=3101)

Institution Type	Proportion	Std Error for Proportion	95% CL for Proportion
Formal Savings Account	0.168	0.007	(0.818, 0.845)

Table 4.20. Savings, 2009/10 (N=2937)

Institution Type	Proportion	Std Error for Proportion	95% CL for Proportion
Credit Union, Savings Association, or MFI	0.096	0.005	(0.086, 0.107)
SACCO	0.066	0.005	(0.057, 0.075)

Institution Type	Proportion	Std Error for Proportion	95% CL for Proportion
Informal Savings Group	0.174	0.007	(0.160, 0.188)
Formal Institution	0.179	0.007	(0.165, 0.192)

We left the "bank" category out of the analysis because of a low response rate. However, 15% of the overall sample answered "yes" to having access to a savings account at a bank, and if any of the missing responses would have answered "yes", this proportion could be higher than 15%.

The institutions observed for access to credit include bank, government agency, credit union, MFI, NGO, cooperative, employer, informal group or SACCO, relative or friend, and moneylender. The 2005/06 data represents institution type as a percentage of total loans taken whereas the 2009/10 data represents the percentage of households in the sample that took a loan from that particular source. Therefore, the 2005/06 and 2009/10 proportions cannot be compared to each other.

Table 4.21. Credit, 2005/06 (N=902)

Institution Type	Proportion	Std Error for Proportion	95% CL for Proportion
Bank	0.083	0.009	(0.065, 0.101)
MFI	0.131	0.011	(0.109, 0.153)
NGO	0.022	0.005	(0.013, 0.032)
Cooperative	0.006	0.002	(0.001, 0.010)
Landlord	0.000	0.000	(0.000, 0.000)
Employer	0.013	0.004	(0.006, 0.021)
Local/informal Savings Group	0.147	0.012	(0.124, 0.171)
Relative	0.142	0.012	(0.119, 0.165)
Friend	0.355	0.016	(0.323, 0.386)
Moneylender	0.025	0.005	(0.015, 0.036)
Other	0.075	0.009	(0.058, 0.093)

The majority of 2005/06 loans were taken from friends and relatives, at 35.5% (+/-0.016) and 14.2% (+/-0.012), respectively. Informal savings groups accounted for 14.7% (+/-0.012) of loans, MFIs accounted for 13.1% (+/-0.011), and banks accounted for 8.3% (+/-0.009). In 2009/10, 24.7% (+/-0.008) of households borrowed from friends and relatives, 13.2% (+/-0.006) from informal groups or SACCOs, and 5.2% (+/-0.004) from banks. Only 4.6% (+/-0.004) of households borrowed from an MFI. Since the 2005/06 data accounts for multiple loans from the same household and the 2009/10 data does not, we do not know for sure if usage in any of these categories has increased or decreased.

Table 4.22. Credit, 2009/10 (N=2918)

Institution Type	Proportion	Std Error for Proportion	95% CL for Proportion
Bank Loan	0.052	0.004	(0.044, 0.060)
Government Agency Loan	0.001	0.001	(0.000, 0.003)
Credit Union Loan	0.019	0.003	(0.014, 0.024)
MFI Loan	0.046	0.004	(0.038, 0.053)
Employer Loan	0.010	0.002	(0.006, 0.013)
SACCO or Savings Group Loan	0.132	0.006	(0.120, 0.145)
Loan from Friend or Relative	0.247	0.008	(0.231, 0.262)
Moneylender Loan	0.011	0.002	(0.007, 0.014)

4.3 Effects of household characteristics on savings account access

Households whose head is between the ages of 15-24 or 65 and older were less likely to have a savings account at a formal institution than those whose head is between the ages of 25-44 or 45-64 in both 2005/06 and 2009/10. Households whose head is between the ages of 15-24 were 0.36 and 0.40 times as likely to have access to savings at

a formal institution as those whose head is between the ages of 25-44 and 45-64, respectively, in 2005/06, and 0.33 and 0.37 times as likely in 2009/10. Households whose head is age 65 or older were 0.61 and 0.68 times as likely to have access to a savings account at a formal institution as those whose head is between the ages of 25-44 and 45-64, respectively, in 2005/06, and 0.59 and 0.68 times as likely in 2009/10. Households whose head is between the ages of 15-24 were 0.48 and 0.45 times as likely to have access to a savings account at a credit union, savings institution, or MFI, as households whose head is between the ages of 25-44 and 45-64, respectively. In the same category, households whose head is age 65 or older were 0.48 and 0.45 times as likely as households whose head is between the ages of 25-44 and 45-64, respectively. For savings with an informal savings group, households whose head is between the ages of 15-24 were 0.81 and 0.68 times as likely to have access as households whose head is between the ages of 25-44 and 45-64, respectively. Households whose head is age 65 or older were 0.62 and 0.52 times as likely to borrow from an informal savings group as households whose head is between the ages of 25-44 and 45-64, respectively.

Table 4.23. Access to Formal Institution Savings by Age of Household Head, 2005/06 (N=3094, Chi-square=34.4659)

Age Category of Household Head	N	Proportion
15-24	302	0.070
25-44	1642	0.194
45-64	829	0.174
65 or older	321	0.118

Table 4.24. Access to Formal Institution Savings by Age of Household Head, 2009/10 (N=2908, Chi-square=25.1370)

Age Category of Household Head	N	Proportion
15-24	121	0.066
25-44	1476	0.203
45-64	929	0.177
65 or older	382	0.120

Table 4.25. Access to Savings Account at a Credit Union, Savings Institution, or MFI by Age of Household Head, 2009/2010 (N=2913, Chi-square=15.3393)

Age Category of Household Head	N	Proportion
15-24	121	0.050
25-44	1480	0.103
45-64	930	0.110
65 or older	382	0.050

Table 4.26. Access to Savings Account at an Informal Savings Group by Age of Household Head, 2009/10 (N=2913, Chi-square=20.0390)

Age Category of Household Head	N	Proportion
15-24	121	0.141
25-44	1480	0.173
45-64	930	0.208
65 or older	382	0.107

Female headed households were 0.72 times as likely to have a savings account with a formal institution as male headed households in 2009/10. There was no significant difference in access to savings accounts from credit unions, savings associations, MFIs, SACCOs, or informal savings groups for female and male headed households.

Table 4.27. Access to Formal Institution Savings by Gender, 2009/10 (N=2913, Chi-square=11.7510)

Gender	N	Proportion
Female	820	0.139

Gender	N	Proportion
Male	2093	0.193

There was a significant difference in access to a savings account at a formal institution depending on marital status in 2005/06 and 2009/10. Households where the head is divorced/separated or widowed were both 0.48 times as likely to have access while those who were never married were 1.21 times more likely to have access, compared with households whose head is married monogamously. In 2009/10, households where the head was never married were about twice as likely as households whose head is married and about three times as likely as households whose head is divorced/separated or widowed to have a savings account at a formal institution. There was also a significant difference in access to an informal savings group depending on marital status, with divorced/separated, widowed, and never married heads of household 0.88, 0.75, and 0.62 times as likely, respectively, to save with an informal savings group compared to households whose head is married monogamously. The same result was found for savings at SACCOs, credit unions, savings associations, and MFIs, although the difference was not as great as that of formal institutions and informal savings groups.

Table 4.28. Access to Formal Institution Savings by Marital Status, 2005/06 (N=3095, Chi-square=37.5271) and 2009/10

Marital Status	N	Proportion
Married monogamously	1686	0.188
Married Polygamous	572	0.175
Divorced/Separated	254	0.091
Widow/Widower	377	0.090
Never Married	206	0.228

Table 4.29. Access to Formal Institution Savings by Marital Status, 2009/10 (N=2907, Chi-square=45.4365)

Marital Status	N	Proportion
Married monogamously	1592	0.194
Married Polygamous	535	0.172
Divorced/Separated	274	0.139
Widow/Widower	43	0.104
Never Married	34	0.374

Table 4.30. Access to Savings with an Informal Savings Group by Marital Status, 2009/10 (N=2912, Chi-square=15.5913)

Marital Status	N	Proportion
Married Monogamously	1594	0.176
Married Polygamous	536	0.218
Divorced/Separated	276	0.156
Widow/Widower	415	0.133
Never Married	91	0.110

Table 4.31. Access to Savings at a SACCO by Marital Status, 2009/10 (N=2912, Chi-square=8.2339)

Marital Status	N	Proportion
Married Monogamously	1594	0.075
Married Polygamous	536	0.075
Divorced/Separated	276	0.044
Widow/Widower	415	0.046
Never Married	91	0.044

Table 4.32. Access to Savings at a Credit Union, Savings Association, or MFI by Marital Status, 2009/10 (N=2913, Chi-square=8.5887)

Marital Status	N	Proportion
Married Monogamously	1594	0.096
Married Polygamous	536	0.123
Divorced/Separated	276	0.091
Widow/Widower	415	0.068
Never Married	91	0.088

Households whose head has completed senior four or higher were more likely than those with primary school education or lower to have a savings account at a formal institution. In 2005/06, these households were 2.59, 6.92, and 13.67 times more likely than households whose head finished some high school, finished primary five, six or seven, or finished some primary, respectively. In 2009/10, these households were 2.14, 4.12, and 7.36 times more likely than households whose head finished some high school, finished primary five, six, or seven, or finished some primary, respectively. The difference for savings accounts at SACCOs, credit institutions, savings associations, and MFIs was very similar to that of formal institutions, although there is not as large a difference between household heads who have post secondary education and those who have only primary education.

Table 4.33. Access to Formal Institution Savings by Education Level of Household Head, 2005/06 (N=2466, Chi-square=647.4894)

Education Level	N	Proportion
P.1, P.2, P.3, or P.4 (some primary)	587	0.043
P.5, P.6, or P.7 (primary five or higher)	1010	0.084
S.1, S.2, or S.3 (some high school)	293	0.225
S.4, S.5, S.6, or Higher Education	503	0.583
Did not finish P.1	15	0.067
Other or do not know	58	0.276

Table 4.34. Access to Formal Institution Savings by Education Level of the Household Head, 2009/10 (N=2218, Chi-square=383.4034)

Education Level	Number	Proportion
P.1, P.2, P.3, or P.4 (some primary)	581	0.071

Education Level	Number	Proportion
P.5, P.6, or P.7 (primary five or higher)	856	0.126
S.1, S.2, or S.3 (some high school)	226	0.243
S.4, S.5, S.6, or Higher Education	458	0.520
Did not finish P.1	27	0.000
Other or do not know	70	0.314

Table 4.35. Access to Savings at a Credit Union, Savings Association, or MFI by Education Level of Household Head, 2009/10 (N=2222, Chi-square=48.6116)

Education Level	N	Proportion
P.1, P.2, P.3, or P.4 (some primary school)	582	0.065
P.5, P.6, or P.7 (primary five or higher)	858	0.100
S.1, S.2, or S.3 (some high school)	226	0.155
S.4, S.5, S.6, or Higher Education	459	0.190
Did not finish P.1	27	0.000
Other or do not know	70	0.100

Access to savings with an informal savings group is greatest for households whose head has completed primary five, six, or seven. These households are 1.04, 1.11, and 1.08 times as likely to have access to savings at an informal savings group as households whose head complete senior four or higher education, some high school, or some primary school, respectively.

Table 4.36. Access to Savings at a SACCO by Education of the Household Head, 2009/10 (N=2222, Chi-Square=23.1475)

Education Level	N	Proportion
P.1, P.2, P.3, or P.4 (some primary)	582	0.043
P.5, P.6, or P.7	858	0.078
S.1, S.2, or S.3 (some high school)	226	0.093
S.4, S.5, S.6, or Higher Education	459	0.118

Education Level	N	Proportion
Did not finish P.1	27	0.000
Other or do not know	70	0.071

Table 4.37. Access to Savings at an Informal Savings Group by Education of the Household Head, 2009/10 (N=2222, Chi-Square=10.0155)

Education Level	N	Proportion
P.1, P.2, P.3, or P.4 (some primary)	582	0.187
P.5, P.6, or P.7	858	0.202
S.1, S.2, or S.3 (some high school)	226	0.181
S.4, S.5, S.6, or Higher Education	459	0.194
Did not finish P.1	27	0.037
Other or do not know	70	0.086

There was a significant difference between household size and access to a savings account in 2005/06 and 2009/10. Households with more than five members have a higher percentage of savings use in all institution types compared with households with one to five members. In 2005/06, households with more than five members were 1.38, 1.82, 1.96, and 1.23 times as likely to have access to a formal savings account than households with four or five members, three members, two members, and one member, respectively. In 2009/10, households with more than five members were 1.56, 1.33, 2.04, and 1.24 times as likely to have access to a savings account as households with four to five members, three member, two members, or one member, respectively.

Table 4.38. Access to Formal Institution Savings by Household Size, 2005/06 (N=3096, Chi-square=28.9581)

Household Size	N	Proportion
1	279	0.165
2	213	0.103
3	314	0.112

Household Size	N	Proportion
4-5	811	0.147
> 5	1479	0.203

Table 4.39. Access to Formal Institution Savings by Household Size, 2009/10 (N=2913, Chi-square=27.4594)

Household Size	N	Proportion
1	161	0.168
2	186	0.102
3	230	0.157
4-5	673	0.134
> 5	1663	0.208

Table 4.40. Access to Savings at a Credit Union, Savings Association, MFI, or SACCO by Household Size, 2009/10 (N=2918, Chi-square=21.8484)

Household Size	N	Proportion
1	162	0.056
2	186	0.054
3	230	0.096
4-5	673	0.067
>5	1667	0.117

Table 4.41. Access to Savings at a SACCO by Household Size, 2009/10 (N=2918, Chi-square=29.2770)

Household Size	N	Proportion
1	4; 2.47%	0.025
2	6; 3.23%	0.032
3	9; 3.91%	0.039
4-5	29; 4.31%	0.043
>5	147; 8.82%	0.088

Table 4.42. Access to Savings with an Informal Savings Group by Household Size, 2009/10 (N=2918, Chi-square=17.5817)

Household Size	N	Proportion
1	162	0.111
2	186	0.129
3	230	0.113
4-5	673	0.172
>5	1667	0.194

Urban households were more than three times as likely as rural households to have a savings account at a formal financial institution and almost twice as likely to have savings with a credit union, savings association, or MFI, while they were 0.76 times as likely as rural households to save with an informal group.

Table 4.43. Access to Formal Institution Savings by Rural/Urban Residence, 2005/06 (N=3101, Chi-square=288.7005)

Rural/Urban	N	Proportion
Rural	2251	0.098
Urban	850	0.354

Table 4.44. Access to Formal Institution Savings by Rural/Urban Residence, 2009/10 N=2913, Chi-square=229.2849)

Rural/Urban	N	Proportion
Rural	2163	0.115
Urban	750	0.360

Table 4.45. Access to Savings at a Credit Union, Savings Association, or MFI by Rural/Urban Residence, 2009/10 (N=2918, Chi-square=30.8251)

Rural/Urban	N	Proportion
Rural	2167	0.078
Urban	751	0.148

Table 4.46. Access to Savings at an Informal Savings Group by Rural/Urban Residence, 2009/10 (N=2918, Chi-square=7.4881)

Rural/Urban	N	Proportion
Rural	2167	0.185
Urban	751	0.141

Households who experienced drought, flood, pest attack, fire, or civil strife in 2005/06 were 0.76, 0.84, 0.80, 0.73, and 0.85 times as likely to have access to a savings

account at a formal institution as the average household which experienced any shock during that time.

Table 4.47. Access to Formal Institution Savings by Household Shock, 2005/06 (N=3627, Chi-square=60.6285)

Type of Household Shock	N	Proportion
Drought	1229	0.099
Flood/Hailstorm	425	0.111
Pest Attack	293	0.106
Bad Seed Quality	71	0.197
Livestock Epidemic	180	0.128
Fire	104	0.096
Civil Strife	269	0.112
Robbery/Theft	347	0.216
Death of Household Head	98	0.122
Death of Family Member	420	0.183
Injury from Accident	81	0.247
Other	110	0.146
Total	3627	0.132

Households that experienced fire or floods were 0.30 and 0.64 times as likely to have a savings account at a formal institution compared with all household who have experienced a shock in 2009/10. Compared with all households who have experienced a shock, households who experienced an unusually high level of crop pest and disease were 0.86 times as likely to have access to an informal savings group; households with an unusually high cost of agricultural inputs were 0.60 times as likely to have access to an informal savings group; households with unusually low prices for agricultural output were 0.58 times as likely to have access to an informal savings group; households that experienced the death of an income earner or other household member were 0.65 and 0.80 times as likely, respectively, to have access to an informal savings group; households that experienced theft of non-agricultural or agricultural assets were 0.66 and

0.79 times as likely, respectively, to have access to an informal savings group; and households who experienced a fire were 0.45 times as likely to have access to an informal savings group, in 2009/10.

Table 4.48. Access to Formal Institution Savings by Household Shock, 2009/10 (N=2643, Chi-square=35.6714)

Type of Household Shock	N	Proportion
Drought/Irregular Rains	1332	0.115
Floods	62	0.081
Landslide/Erosion	22	0.000
Unusually high level of crop pest and disease	135	0.170
Unusually high level of livestock disease	81	0.136
Unusually high costs of agricultural inputs	58	0.103
Unusually low prices for agricultural output	50	0.200
Reduction in earnings	28	0.321
Loss of employment	9	0.444
Serious illness or accident of income earner	188	0.128
Serious illness or accident of other household member	186	0.118
Death of income earner	27	0.185
Death of other household member	73	0.164
Theft of money, valuables, or non-agricultural assets	105	0.171
Theft of agricultural assets (crops of livestock)	126	0.103
Conflict/Violence	34	0.118
Fire	26	0.039
Other	101	0.149
Total	2643	0.127

Table 4.49. Access to Savings at an Informal Savings Group by Household Shocks, 2009/10 (N=2647, Chi-square=27.1372)

Type of Household Shock	N	Proportion
Drought/Irregular Rains	1333	0.177
Floods	62	0.226
Landslide/Erosion	22	0.227
Unusually high level of crop pest and disease	136	0.147
Unusually high level of livestock disease	82	0.256

Type of Household Shock	N	Proportion
Unusually high costs of agricultural inputs	58	0.103
Unusually low prices for agricultural output	50	0.100
Reduction in earnings	28	0.179
Loss of employment	9	0.000
Serious illness or accident of income earner	188	0.176
Serious illness or accident of other household member	186	0.161
Death of income earner	27	0.111
Death of other household member	73	0.137
Theft of money, valuables, or non-agricultural assets	106	0.113
Theft of agricultural assets (crops of livestock)	126	0.135
Conflict/Violence	34	0.177
Fire	26	0.077
Other	101	0.277
Total	2647	0.171

In 2005/06, households who owned generators, transport equipment, or solar panel/electric inverters were 2.96, 3.55, and 2.77 times as likely to have a savings account at a formal institution as the average household owning at least one asset. Households who own a house were 0.63 times as likely as the average asset-owning household to have access to a savings account.

Table 4.50. Access to Formal Institution Savings by Asset, 2005/06 (N=16223, Chi-square=898.4699)

Asset	N	Proportion
Bednets	985	0.336
Bicycle	1172	0.195
Electronic Equipment	1991	0.241
Furnishings	3000	0.173
Furniture	2777	0.182
Generators	26	0.692

Asset	N	Proportion
House	2381	0.148
Household Appliances	1148	0.294
Jewelry and Watches	1115	0.327
Mobile Phone	609	0.557
Motorcycle	77	0.507
Other	193	0.259
Other Buildings	673	0.250
Other Transport Equipment	59	0.831
Solar Panel/Electric Inverters	17	0.647
Total	16223	0.234

Households that own a computer were 2.64 times as likely as households that own other assets to have a savings account at a formal institution in 2009/10. Similarly, households that own a generator were 2.12 times as likely, households that own a motor vehicle were 3.05 times as likely, households who own electronic equipment were 2.42 times as likely, households that own transport equipment were 3.03 times as likely, households who own solar panels/electric inverters were 1.83 times as likely, and households that own a television were 2.26 times as likely as households who own other assets to have a savings account at a formal institution in 2009/10. Households that own a boat, house, or land were 0.45, 0.71, and 0.69 times as likely as households who own other assets to have a savings account at a formal institution in 2009/10.

Households that own a boat or solar panels were 1.66 and 1.31 times as likely to have savings at an informal savings group in 2009/10 as households who own other assets. Households that own a motor vehicle were 0.38 times as likely as households who own other assets to have savings with an informal savings group.

Table 4.51. Access to Savings with an Informal Savings Group by Asset, 2009/10 (N=16130, Chi-square=89.1213)

Asset	N	Proportion
Bicycle	1196	0.202
Boat	19	0.316
Computer	77	0.130
Furniture/Furnishings	2588	0.183
Generators	50	0.120
House	2325	0.186
Household Appliances	537	0.129
Internet Access	1	0.000
Jewelry and Watches	582	0.180
Land	2142	0.203
Mobile Phone	1515	0.193
Motor Vehicle	82	0.073
Motorcycle	200	0.190
Other 1	859	0.187
Other 2	324	0.207
Other Buildings	834	0.200
Other Electronic Equipment	84	0.107
Other Household Assets	377	0.321
Other Transport Equipment	7	0.000
Radio/Cassette	1919	0.193
Solar Panel/Electric Inverters	44	0.250
Television	368	0.130
Total	16130	0.190

Table 4.52. Access to Savings at a Formal Institution by Asset, 2009/10 (N=16098, Chi-square=818.2343)

Asset	N	Proportion
Bicycle	1193	0.197
Boat	19	0.105
Computer	77	0.623
Furniture/Furnishings	2583	0.189
Generators	50	0.500
House	2321	0.167
Household Appliances	535	0.398
Internet Access	1	1.000
Jewelry and Watches	580	0.353
Land	2138	0.163
Mobile Phone	1511	0.313
Motor Vehicle	82	0.720
Motorcycle	199	0.392

Asset	N	Proportion
Other 1	858	0.204
Other 2	324	0.225
Other Buildings	831	0.218
Other Electronic Equipment	84	0.571
Other Household Assets	377	0.252
Other Transport Equipment	7	0.714
Radio/Cassette	1916	0.230
Solar Panel/Electric Inverters	44	0.432
Television	368	0.533
Total	16098	0.236

In 2009/10, compared with all other asset types, households that own a computer were 1.78 times as likely to have a savings account at a credit union, savings association, or MFI. Similarly, households that own a generator were 1.54 times as likely, households that own a motor vehicle were 1.78 times as likely, households that own electronic equipment were 2.14 times as likely, and households that own a television were 1.49 times as likely to have a savings account at a credit union, savings association, or MFI compared to the average household that owns any other asset. Households that own land or a house were 0.82 and 0.73 times as likely to have a savings account at a credit union, savings association, or MFI, as the average household that owns assets.

Households that own a motor vehicle or solar panel were 1.65 and 1.96 times as likely to have savings at a SACCO compared with households who own any other assets. Households that own land or a house were 0.95 and 0.91 times as likely to have savings at a SACCO as households who own other assets.

Table 4.53. Access to Savings at a Credit Union, Savings Association, or MFI by Asset, 2009/10 (N=16130, Chi-square=145.6337)

Asset	N	Proportion
Bicycle	1196	0.125
Boat	19	0.105
Computer	77	0.208
Furniture/Furnishings	2588	0.102
Generators	50	0.180
House	2325	0.085
Household Appliances	537	0.155
Internet Access	1	0.000
Jewelry and Watches	582	0.150
Land	2142	0.095
Mobile Phone	1515	0.139
Motor Vehicle	82	0.207
Motorcycle	200	0.195
Other 1	859	0.080
Other 2	324	0.096
Other Buildings	834	0.164
Other Electronic Equipment	84	0.250
Other Household Assets	377	0.111
Other Transport Equipment	7	0.286
Radio/Cassette	1919	0.121
Solar Panel/Electric Inverters	44	0.136
Television	368	0.174
Total	16130	0.117

Table 4.54. Access to Savings at a SACCO by Asset, 2009/10 (N=16130, Chi-square=48.3538)

Asset	N	Proportion
Bicycle	1196	0.088
Boat	19	0.105
Computer	77	0.065
Furniture/Furnishings	2588	0.071
Generators	50	0.060
House	2325	0.074
Household Appliances	537	0.089
Internet Access	1	0.000
Jewelry and Watches	582	0.093
Land	2142	0.077
Mobile Phone	1515	0.100
Motor Vehicle	82	0.134
Motorcycle	200	0.100

Asset	N	Proportion
Other 1	859	0.051
Other 2	324	0.077
Other Buildings	834	0.078
Other Electronic Equipment	84	0.095
Other Household Assets	377	0.133
Other Transport Equipment	7	0.000
Radio/Cassette	1919	0.083
Solar Panel/Electric Inverters	44	0.159
Television	368	0.082
Total	16130	0.081

In 2005/06, households with assets worth between zero and one million shillings were less likely to have access to savings than households in any other asset class. They were between 0.119 and 0.324 times as likely to have access to a savings account as other households in higher asset value classes. The same was not true in 2009/10, where households in the lowest asset value class were 0.281 times as likely to have access to a formal savings account as households with assets valued over five million, but 1.169 times as likely as households with assets valued between one and two million shillings.

In both years, households with assets valued over five million shillings were the most likely to have access to savings at a formal institution. In 2005/06, they were between 1.546 and 8.416 times as likely as households in other asset value classes to have access to a formal savings account. In 2009/10, they were between 2.899 and 4.157 times as likely as other households to have access to a savings account at a formal institution.

Table 4.55. Access to Formal Institution Savings by Asset Value, 2005/06 (N=2643, Chi-square=552.2337)

Asset Value Class	N	Proportion
0 to 1 Million	1942	0.070
1 to 2 Million	213	0.216
2 to 3 Million	103	0.243
3 to 4 Million	68	0.353
4 to 5 Million	42	0.381
More than 5 Million	275	0.589

Table 4.56. Access to Formal Institution Savings by Asset Value, 2009/10 (N=2900, Chi-square=266.4796)

Asset Value Class	N	Proportion
0 to 1 Million	895	0.097
1 to 2 Million	448	0.083
2 to 3 Million	270	0.100
3 to 4 Million	187	0.118
4 to 5 Million	151	0.119
More than 5 Million	949	0.345

Households in the lowest asset value class were the least likely to have a savings account at a SACCO or informal savings group in 2009/10, but were 1.125 times as likely as households with assets valued between one and two million shillings and 1.189 times as likely as households with assets valued between two and three million shillings to have access to a savings account at a credit union, savings association, or MFI. Households with more than five million shillings in assets were between 1.677 and 3.038 more likely than other households to have access to a savings account at a credit union, savings association, or MFI and between 1.131 and 4.000 times as likely to have access to a savings account at a SACCO. Households in the lowest asset class are less likely than households in any other asset class to have access to savings at a SACCO or Informal Savings Group.

Table 4.57. Access to Savings at a Credit Union, Savings Association, or MFI by Asset Value, 2009/10 (N=2905, Chi-square=70.5703)

Asset Value Class	N	Proportion
0 to 1 Million	895	0.063
1 to 2 Million	449	0.056
2 to 3 Million	271	0.074
3 to 4 Million	188	0.096
4 to 5 Million	151	0.053
More than 5 Million	951	0.161

Table 4.58. Access to Savings at a SACCO by Asset Value, 2009/10 (N=2905, Chi-square=58.4151)

Asset Value Class	N	Proportion
0 to 1 Million	895	0.028
1 to 2 Million	449	0.049
2 to 3 Million	271	0.048
3 to 4 Million	188	0.075
4 to 5 Million	151	0.099
More than 5 Million	951	0.112

Table 4.59. Access to Savings at an Informal Savings Group by Asset Value, 2009/10 (N=2905, Chi-square=32.2437)

Asset Value Class	N	Proportion
0 to 1 Million	895	0.118
1 to 2 Million	449	0.174
2 to 3 Million	271	0.188
3 to 4 Million	188	0.202
4 to 5 Million	151	0.238
More than 5 Million	951	0.207

Households whose main income source is subsistence farming were 0.46 times as likely to have a savings account at a formal institution, but 1.08 times as likely to save with an informal savings group compared with the average of all households grouped by main income source. Households whose main income is from remittances were 0.70 times as likely to have a savings account at a formal institution and 0.28 as likely to save

with an informal savings group compared with the average of all households grouped by main income source.

Table 4.60. Access to Savings from a Formal Institution by Main Source of Household Income, 2009/10 (N=2902, Chi-square=230.2154)

Main Source of Household Income	N	Proportion
Subsistence Farming	1374	0.082
Commercial Farming	57	0.211
Wage Employment	636	0.318
Non-agricultural Enterprise	608	0.235
Property Income	38	0.526
Transfers	13	0.462
Remittances	145	0.124
Organizational Support	10	0.000
Other	21	0.143
Total	2902	0.178

Table 4.61. Access to Savings at an Informal Savings Group by Main Source of Household Income, 2009/10 (N=2907, Chi-square=31.6281)

Main Source of Household Income	N	Proportion
Subsistence Farming	1376	0.188
Commercial Farming	57	0.211
Wage Employment	637	0.146
Non-agricultural Enterprise	610	0.210
Property Income	38	0.105
Transfers	13	0.077
Remittances	145	0.048
Organizational Support	10	0.000
Other	21	0.143
Total	2907	0.174

4.4 Effects of household characteristics on credit access

In 2005/06, households where the household head is between the ages of 15-24 were 0.18 and 0.14 times as likely to have access to bank credit than households whose

head is between the ages of 25-44 and 45-64, respectively. Households whose head is age 65 or older were 0.47 and 0.37 times as likely to have access to bank credit than households whose heads are between the ages of 25-44 and 45-64, respectively. In 2009/10, households whose head is between the ages of 15-24 were 0.26 and 0.33 times as likely to have access to bank credit than households whose head is between the ages of 25-44 and 45-64, respectively. Households whose head is age 65 or older were 0.37 and 0.48 times as likely to have access to bank credit than households whose head is between the ages of 25-44 and 45-64, respectively.

Table 4.62. Access to Bank Credit by Age of Household Head, 2005/06 (N=902, Chi-square=7.2020)

Age Category of Household Head	N	Proportion
15-24	67	0.015
25-44	543	0.085
45-64	242	0.107
65 or older	50	0.040

Table 4.63. Access to Bank Credit by Age of Household Head, 2009/10 (N=2913, Chi-square=13.4958)

Age Category of Household Head	N	Proportion
15-24	121	0.017
25-44	1480	0.064
45-64	930	0.050
65 or older	382	0.024

There was a significant difference in loans from a friend in 2005/06, with households whose head is between the ages of 15-24 more than 1.5 times as likely to take a loan from a friend as households whose head is between the ages of 25-44 or 65 and

older, and twice as likely as those whose head is between the ages of 45-64. No households with heads between the ages of 15-24 had access to credit from an MFI.

Table 4.64. Access to Credit from a Friend by Age of Household Head, 2005/06 (N=902, Chi-square=22.7356)

Age Category of Household Head	N	Proportion
15-24	67	0.612
25-44	543	0.344
45-64	242	0.302
65 or older	50	0.380

Table 4.65. Access to Credit from MFI by Age of Household Head, 2005/06 (N=902, Chi-square=11.8294)

Age Category of Household Head	N	Proportion
15-24	67	0.000
25-44	543	0.149
45-64	242	0.124
65 or older	50	0.140

In 2009/10, households whose head is between the ages of 15-24 were 0.31 and 0.35 times as likely to borrow from an MFI, and 0.58 and 0.47 times as likely to borrow from a SACCO or informal savings group than households whose head is between the ages of 25-44 or 45-64, respectively. The results from 2009/10 also show that households whose head is age 65 and older were 0.53, 0.50, and 0.64 times as likely to borrow from friends or relatives than households whose head is between the ages of 15-24, 25-44, and 45-64, respectively.

Table 4.66. Access to Credit from an MFI by Age of Household Head, 2009/10 (N=2913, Chi-square=9.5159)

Age Category of Household Head	N	Proportion
15-24	121	0.017
25-44	1480	0.053
45-64	930	0.047
65 or older	382	0.021

Table 4.67. Access to Credit from SACCO or Informal Savings Group by Age of Household Head, 2009/10 (N=2913, Chi-square=12.6909)

Age Category of Household Head	N	Proportion
15-24	121	0.074
25-44	1480	0.128
45-64	930	0.159
65 or older	382	0.102

Table 4.68. Access to Credit from Friends or Relatives by Age of Household Head, 2009/10 (N=2913, Chi-square=36.9570)

Age Category of Household Head	N	Proportion
15-24	121	0.273
25-44	1480	0.286
45-64	930	0.224
65 or older	382	0.144

The 2009/10 data show that female headed households were 0.63, 0.31, and 0.80 times as likely to access loans from a bank, employer, or friend/relative, respectively, but 1.58 times more likely to access loans from a credit union. There is no significant difference between male and female headed households for access to loans from a SACCO, savings group, MFI, or moneylender.

Table 4.69. Access to Bank Credit by Gender, 2009/10 (N=2918, Chi-square=5.5529)

Gender	N	Proportion
Female	820	0.037
Male	2098	0.058

Table 4.70. Access to Credit from a Credit Union by Gender, 2009/10 (N=2918, Chi-square=2.8192)

Gender	N	Proportion
Female	820	0.026
Male	2098	0.016

Table 4.71. Access to Credit from an Employer by Gender, 2009/10 (N=2917, Chi-square=4.2204)

Gender	N	Proportion
Female	819	0.004
Male	2098	0.012

Table 4.72. Access to Credit from Friend or Relative by Gender, 2009/10 (N=2918, Chi-square=8.3952)

Gender	N	Proportion
Female	820	0.210
Male	2098	0.261

Significant differences in credit sources by marital status of the household head were found in bank loans, SACCOs and savings groups, and loans from a friend or relative. In 2005/06, households whose heads are married monogamously were 2.61, 1.84, and 1.29 more likely to access bank loans than households where the head is divorced/separated, widowed, or never married, respectively, and the difference is even greater for polygamous households. The same result is found in 2009/10, but the difference is not as great, with households whose head is widowed still 0.41 times as likely to access bank credit as households whose head is married monogamously.

However, in 2009, households where the head was never married were 1.12 times more likely to access bank credit as households whose head is married monogamously.

Table 4.73. Access to Bank Credit by Marital Status of the Household Head, 2005/06 (N=902, Chi-square=8.8928)

Marital Status of Household Head	N	Proportion
Married Monogamously	533	0.083
Married Polygamous	170	0.129
Divorced/Separated	63	0.032
Widow/Widower	89	0.045
Never Married	47	0.064

Table 4.74. Access to Bank Credit by Marital Status of the Household Head, 2009/10 (N=2912, Chi-square=8.6412)

Marital Status of Household Head	N	Proportion
Married Monogamously	1594	0.059
Married Polygamous	536	0.052
Divorced/Separated	276	0.047
Widow/Widower	415	0.024
Never Married	91	0.066

In 2009/10, there was a significant difference in access to SACCO and savings group loans. Households whose head is divorced/separated or widowed were 0.68 and 0.71 times as likely than monogamously married heads of household to access these loans, and those whose heads were never married were 0.44 times as likely.

Table 4.75. Access to Credit from a SACCO or Informal Savings Group by Marital Status of the Household Head, 2009/10 (N=2912, Chi-square=12.0225)

Marital Status of Household Head	N	Proportion
Married Monogamously	1594	0.149
Married Polygamous	536	0.131
Divorced/Separated	276	0.101
Widow/Widower	415	0.106
Never Married	91	0.066

While no difference was found for loans from relatives in 2005/06, households whose head was never married were 1.54, 1.84, 1.45, and 1.82 times more likely to borrow from friends than households whose head is married monogamously, married polygamous, divorced/separated, or widow/widower, respectively. The same results were found in 2009/10, but the differences are not as great as they were in 2005/06. In 2009/10, households whose heads are separated/divorced or widowed were 0.85 and 0.77 times as likely to take a loan from friends or relatives than households whose head is married monogamously.

Table 4.76. Access to Credit from Friends by Marital Status of the Household Head, 2005/06 (N=902, Chi-square=11.5967)

Marital Status of Head of Household	N	Proportion
Married Monogamously	533	0.360
Married Polygamous	170	0.300
Divorced/Separated	63	0.381
Widow/Widower	89	0.303
Never Married	47	0.553

Table 4.77. Access to Credit from Friends and Relatives by Marital Status of the Household Head, 2009/10 (N=2912, Chi-square=9.7050)

Marital Status of Head of Household	N	Proportion
Married Monogamously	1594	0.259
Married Polygamous	536	0.248
Divorced/Separated	276	0.221
Widow/Widower	415	0.200
Never Married	91	0.319

There were no significant differences for credit from friends, relatives, SACCOs, or informal savings groups by education level of the household head in 2009/10. No other tests could be run for education level of the household head due to low counts.

In 2005/06, there was a significant difference between household size and access to credit. Households with only one member were 2.95 and 2.26 more likely to have access to bank loans than households with three members or four to five members. Households with more than five members were 1.80 and 1.38 times more likely to have access to bank loans than households with three members or four to five members, respectively and were approximately twice as likely as households with two to five members to take a loan from an MFI. Households with five or fewer members were between 1.35 and 1.57 times more likely than households with more than five members to take a loan from a friend.

Table 4.78. Access to Bank Credit by Household Size, 2005/06 (N=901, Chi-square=10.8190)

Household Size	N	Proportion
1	58	0.155
2	49	0.000
3	76	0.053
4-5	233	0.069
>5	485	0.095

Table 4.79. Access to Credit from an MFI by Household Size, 2005/06 (N=901, Chi-square=13.6149)

Household Size	N	Proportion
1	58	0.138
2	49	0.082
3	76	0.066
4-5	233	0.086
>5	485	0.167

Table 4.80. Access to Credit from Friend by Household Size, 2005/06 (N=901, Chi-square=18.0657)

Household Size	N	Proportion
1	58	0.340
2	49	0.449

Household Size	N	Proportion
3	76	0.461
4-5	233	0.416
>5	485	0.293

Results from 2009/10 show that households of over five were 1.56, 1.49, 4.02, and 3.50 times as likely as households with four to five, three, two, or one member, respectively, to have access to bank loans. The 2009/10 results also show that households with more than five members were 1.15, 1.46, 2.35, and 3.07 times as likely as households with four to five, three, two, or one member, respectively, to have access to credit from a SACCO or informal savings group.

Table 4.81. Access to Bank Credit by Household Size, 2009/10 (N=2918, Chi-squared=15.8557)

Household Size	N	Proportion
1	162	0.019
2	186	0.016
3	230	0.044
4-5	673	0.042
>5	1667	0.065

Table 4.82. Access to Credit from SACCO or Informal Savings Group by Household Size, 2009/10 (N=2918, Chi-square=24.2195)

Household Size	N	Proportion
1	162	0.049
2	186	0.065
3	230	0.104
4-5	673	0.132
>5	1667	0.152

Table 4.83. Access to Bank Credit by Rural/Urban Residence, 2005/06 (N=902, Chi-square=34.2662)

Rural/Urban	N	Proportion
Rural	629	0.048

Rural/Urban	N	Proportion
Urban	273	0.165

Rural households were 4.37 and 1.74 times more likely than urban households to take a loan from an informal group or SACCO in 2005/06 and 2009/10, respectively. Urban households were 1.64 and 3.51 times more likely than rural households to take a loan from an MFI and 3.45 and 2.96 times as likely to access credit from a bank in 2005/06 and 2009/10, respectively. In 2009/10, urban households were also 10.46 times more likely than rural households to borrow from their employer.

Table 4.84. Access to Bank Credit by Rural/Urban Residence, 2009/10 (N=2918, Chi-square=52.1054)

Rural/Urban	N	Proportion
Rural	2167	0.035
Urban	751	0.103

Table 4.85. Access to MFI Credit by Rural/Urban Residence, 2005/06 (N=902, Chi-square=8.1545)

Rural/Urban	N	Proportion
Rural	629	0.110
Urban	273	0.180

Table 4.86. Access to Credit from an MFI by Rural/Urban Residence, 2009/10 (N=2918, Chi-square=61.9545)

Rural/Urban	N	Proportion
Rural	2167	0.028
Urban	751	0.097

Table 4.87. Access to Credit from Informal Savings Group by Rural/Urban Residence, 2005/06 (N=902, Chi-square=33.3568)

Rural/Urban	N	Proportion
Rural	629	0.192
Urban	273	0.044

Table 4.88. Access to Credit from an Informal Savings Group or SACCO by Rural/Urban Residence, 2009/10 (N=2918, Chi-square=19.5137)

Rural/Urban	N	Proportion
Rural	2167	0.149
Urban	751	0.085

Table 4.89. Access to Credit from Employer by Rural/Urban Residence, 2009/10 (N=2917, Chi-square=41.2680)

Rural/Urban	N	Proportion
Rural	2166	0.003
Urban	751	0.029

The only significant difference in access to credit by household shocks in 2005/06 was found in informal savings groups. Households who experienced a livestock epidemic were 0.56 times as likely to have access to credit from an informal savings group as the average household who experienced a shock of any kind; households who experienced a fire were 0.64 times as likely; households who experienced civil strife were 0.47 times as likely; households who experienced robbery/theft were 0.38 times as likely; and households who experienced the death of a family member were 0.72 times as likely as the average family who experienced a shock of any kind to have access to credit from an informal savings group.

Table 4.90. Access to Credit from Informal Savings Group by Household Shock, 2005/06 (N=1086, Chi-square=31.4019)

Type of Household Shock	N	Proportion
Drought	362	0.204
Flood/Hailstorm	156	0.250
Pest Attack	106	0.179
Bad Seed Quality	20	0.250
Livestock Epidemic	53	0.094
Fire	28	0.107
Civil Strife	38	0.079
Robbery/Theft	108	0.065

Type of Household Shock	N	Proportion
Death of Household Head	20	0.250
Death of Family Member	148	0.122
Injury from Accident	32	0.156
Other	15	0.000
Total	1086	0.169

In 2009/10, the only significant differences found between types of household shocks were for credit from friends or relatives. Households who experienced drought/irregular rains and theft of money, valuables, or non-agricultural assets were 0.91 and 0.79 times as likely as the average household that experienced a shock of any kind to borrow from friends and relatives.

Table 4.91. Access to Credit from Friends and Relatives by Household Shock, 2009/10 (N=2647, Chi-square=25.4569)

Type of Household Shock	N	Proportion
Drought/Irregular Rains	1333	0.272
Floods	62	0.387
Landslide/Erosion	22	0.409
Unusually high level of crop pest and disease	136	0.294
Unusually high level of livestock disease	82	0.342
Unusually high costs of agricultural inputs	58	0.362
Unusually low prices for agricultural output	50	0.280
Reduction in earnings	28	0.464
Loss of employment	9	0.444
Serious illness or accident of income earner	188	0.351
Serious illness or accident of other household member	186	0.290
Death of income earner	27	0.370
Death of other household member	73	0.315
Theft of money, valuables, or non-agricultural assets	106	0.236

Type of Household Shock	N	Proportion
Theft of agricultural assets (crops of livestock)	126	0.373
Conflict/Violence	34	0.324
Fire	26	0.423
Other	101	0.287
Total	2647	0.299

Households with assets worth over five million shillings were least likely to borrow from an informal savings group in 2005/06. These households were between 0.344 and 0.172 times as likely as households in other asset value classes to borrow from a savings group. Households with assets valued between one and two million shillings were between 1.173 and 5.807 times as likely as other households to have access to loans from an informal savings group in 2005/06. Households with assets of one million shillings or less were 1.513 and 4.403 times as likely to borrow from an informal savings group as households with assets between four and five million and households with assets of over five million, respectively. Households in the lowest asset value class were also between 1.404 and 2.341 times more likely than households with greater assets to borrow from a friend. We could not test the credit data by asset type due to low counts.

Table 4.92. Access to Credit from Informal Savings Group by Asset Value, 2005/06 (N=773, Chi-square=15.3474)

Asset Value Class	N	Proportion
0 to 1 Million	506	0.178
1 to 2 Million	81	0.235
2 to 3 Million	35	0.200
3 to 4 Million	35	0.200
4 to 5 Million	17	0.118
More than 5 Million	99	0.040

Table 4.93. Access to Credit from Friend by Asset Value, 2005/06 (N=773, Chi-square=26.5227)

Asset Value Class	N	Proportion
0 to 1 Million	506	0.401
1 to 2 Million	81	0.222
2 to 3 Million	35	0.286
3 to 4 Million	35	0.171
4 to 5 Million	17	0.177
More than 5 Million	99	0.222

Households in the highest asset value class were more likely than households in any other asset value class to have access to bank loans or MFI loans in 2009/10. These households were between 1.750 and 7.000 times as likely to have access to bank credit as households in other asset classes. Households with over five million shillings in assets were also between 1.434 and 6.909 times as likely to have access to credit from an MFI as other households.

Households with assets valued between zero and three million shillings are less likely to have access to bank or MFI credit than households with assets greater than three million shillings. However, households in the lowest asset value class were not least likely in either category; these households were 1.200 times as likely to have access to bank credit as households with assets valued between two and three million shillings and 2.727 times as likely to have access to credit from an MFI as households with assets valued between one and two million shillings.

Table 4.94. Access to Bank Credit by Asset Value, 2009/10 (N=2905, Chi-square=87.7644)

Asset Value Class	N	Proportion
0 to 1 Million	895	0.018
1 to 2 Million	449	0.029
2 to 3 Million	271	0.015

Asset Value Class	N	Proportion
3 to 4 Million	188	0.053
4 to 5 Million	151	0.060
More than 5 Million	951	0.105

Table 4.95. Access to Credit from an MFI by Asset Value, 2009/10 (N=2905, Chi-square=37.0805)

Asset Value Class	N	Proportion
0 to 1 Million	895	0.030
1 to 2 Million	449	0.011
2 to 3 Million	271	0.044
3 to 4 Million	188	0.053
4 to 5 Million	151	0.046
More than 5 Million	951	0.076

Households with assets of one million shillings or less were least likely to have access to loans from a SACCO or savings group in 2009/10, but were more likely than any other households to borrow from friends or relatives. Specifically, households in the lowest asset value class were between 0.366 and 0.600 times as likely as households in all other classes to have access to SACCO or savings group loans. These households were between 1.053 and 1.402 times as likely to borrow from friends and relatives.

Table 4.96. Access to Credit from SACCO or Informal Savings Group by Asset Value, 2009/10 (N=2905, Chi-square=46.8624)

Asset Value Class	N	Proportion
0 to 1 Million	895	0.075
1 to 2 Million	449	0.125
2 to 3 Million	271	0.166
3 to 4 Million	188	0.138
4 to 5 Million	151	0.205
More than 5 Million	951	0.169

Table 4.97. Access to Credit from Friends and Relatives by Asset Value, 2009/10 (N=2905, Chi-square=12.4313)

Asset Value Class	N	Proportion
0 to 1 Million	895	0.279
1 to 2 Million	449	0.265
2 to 3 Million	271	0.247
3 to 4 Million	188	0.245
4 to 5 Million	151	0.199
More than 5 Million	951	0.217

Households whose main income source is subsistence farming, commercial farming, or wage employment were 1.04, 1.57, and 1.10 times as likely to take a loan from friends or relatives as households whose main source of income comes from any other source. Households whose main income is from subsistence farming were 1.20 times as likely to have access to credit from a SACCO or informal savings group as households whose main income comes from any other source. Households whose main income is from remittances were 0.53 and 0.26 times as likely to have access to credit from friends/relatives or SACCO/informal savings group, respectively, than households whose income comes from other sources.

Table 4.98. Access to Credit from Friend or Relative by Main Source of Household Income, 2009/10 (N=2907, Chi-square=29.3112)

Main Source of Household Income	N	Proportion
Subsistence Farming	1376	0.257
Commercial Farming	57	0.386
Wage Employment	637	0.270
Non-agricultural Enterprise	610	0.223
Property Income	38	0.158
Transfers	13	0.000
Remittances	145	0.131
Organizational Support	10	0.400
Other	21	0.143
Total	2907	0.246

Table 4.99. Access to Credit from a SACCO or Informal Savings Group by Main Source of Household Income, 2009/10 (N=2907, Chi-square=28.6429)

Main Source of Household Income	N	Proportion
Subsistence Farming	1376	0.159
Commercial Farming	57	0.088
Wage Employment	637	0.122
Non-agricultural Enterprise	610	0.123
Property Income	38	0.079
Transfers	13	0.077
Remittances	145	0.035
Organizational Support	10	0.000
Other	21	0.000
Total	2907	0.133

The results show that there are large differences in access to different types of financial institutions for different types of households. The next chapter provides a summary of these results, discusses some preliminary regression results, and makes recommendations for future studies.

CHAPTER FIVE

SUMMARY AND DISCUSSION

This study was conducted to explore the relationship between several household characteristics and access to savings and credit from various sources. Household characteristics observed were age, gender, marital status, and education level of the household head; household size; whether the household resides in a rural or urban location; asset ownership and value; types of households shocks experienced; and main income source. This chapter summarizes the results and discusses their implications.

The goal of this research is to answer the question, "Which household characteristics contribute to access to savings and credit at various types of financial institutions?" Using World Bank panel data collected in Uganda in 2005/06 and 2009/10, we conducted a series of chi-squared tests to find significant relationships between the household variables and access to financial products at the different institutions. All tests used a significance level of 0.05.

5.1 Savings Summary

The proportions of households with access to a savings account at a formal institution increased slightly from 2005/06 to 2009/10.

We found many significant differences based on characteristics of the household head. Households whose head is between the ages of 15-24, 65 or older, or has less than a secondary education were less likely to have access to formal, semi-formal, or informal types of savings account. Those whose head has completed secondary school or higher

were twice as likely to have access to a savings account at a formal institution than those who have not completed secondary school.

Female headed households were also less likely to have access to a savings account at a formal institution, but there was no significant difference at the semi-formal or informal level between female and male headed households. This may be because female heads of household are more likely than male household heads to get involved in community groups and SACCOs, but may not feel comfortable using a formal institution for a variety of reasons including illiteracy, lack of trust, or time and cost of going to a formal institution.

The results for marital status of the household head show that households whose head is divorced, separated, or widowed were less likely than households whose head is married to have access to a savings account at any type of institution. Households whose head has never been married were less likely to have a savings account at a semi-formal or informal institution, while they were more likely to have access to a formal institution.

Households with more than five members were more likely than those with five or fewer to have access to a savings account at all types of institutions. Urban households were more than three times as likely as rural households to have a savings account at a formal financial institution and almost twice as likely to have savings with a credit union or MFI, while they were less likely than rural households to save with an informal group.

There were not many large differences in access to savings between types of household shocks experienced. The largest difference was for households who experienced drought, flood, or fire; they had significantly less access to formal savings

compared with the average for all households that experienced shocks in both 2005/06 and 2009/10. This may be because these shocks are more expensive to recover from than other household shocks.

Households that own an asset that may earn them income seem to have more access to a savings account, although further research would be necessary to confirm this. Households who own a generator, solar panels, a motor vehicle, transport equipment, a computer, or a television were more likely to have a savings account than other households. Households who own a boat were less likely to have savings at a formal institution, but more likely to have savings with an informal savings group. This is likely due to the fact that, while a boat is an income generating asset for fishing families, the income is typically very low. Households that own a motor vehicle were more likely to have savings at a formal institution and less likely to have savings at an informal savings group. This may be because households that own a motor vehicle are typically wealthier households; however, there may also be households who use the vehicle as a taxi, which can earn a large income. Households that own land or a house were less likely to have a savings account at any institution.

In both 2005/06 and 2009/10 households with assets of over five million Uganda Shillings (UGX) were the most likely to have access, not only to a formal savings account, but to all other categories of savings with a significant result. However, households in the lowest asset value class of zero to one million UGX were least likely in 2005/06. In 2009/10, these households were more likely than households with assets valued between two and three million UGX. They were also more likely than households

with assets of one to two million shillings to have access to savings at a credit union, savings association, or MFI. This may be a result of the shift from credit to savings from some of these organizations.

The results show that subsistence farmers were less likely than other households to have a savings account with a formal institution, but more likely to save with an informal group. This result is consistent with previous findings and is not surprising, given the barriers to formal finance that subsistence farmers are faced with. These barriers include low and inconsistent income and distance to the institution. The results also show that households whose main income source was remittances are less likely than other households to have access to formal or informal savings. This result was surprising, since some research has found that households who depend on remittances are more likely to need and use a savings account to hold their remittance payments. However, if these households are extremely poor, they may be using the entirety of these remittance payments for living expenses.

It makes sense to focus linkage programs on households who have less access to formal savings accounts. Households who already have access to informal savings groups, but no access to formal financial institutions are a good starting point, since they are more likely to be financially literate and may have some capital accumulated in savings. For example, households whose head has finished at least primary one, but has not gone beyond primary seven, and households whose main income source is from subsistence farming are good candidates for linkage banking programs, as they are more likely to save with an informal savings group but less likely to have a savings account at

a formal institution. Households who do not have access to informal savings groups should also be targeted, but will require more resources for training.

It is clear from the results of the survey analysis that rural households, households with less than six members, and those households whose heads are between the ages of 15-24, 65 or older, are female, not married, have little or no education, low asset value, or depend mainly on subsistence farming, remittances, or organizational support as their main source of income are the households that are more financially excluded. All of these households should be targeted for linkage banking programs.

5.2 Credit Summary

In 2009/10, more loans were taken from informal sources such as relative/friend or savings group/SACCO, at 24.67% and 13.23% respectively, than from a bank, with only 5.21% of households reporting a loan from this source.

Households whose head is between the ages of 15-24, 65 and older, female, divorced, separated, or widowed, or have little or no education were less likely to have access to bank credit. Households whose head is divorced, separated, or widowed were also less likely than households whose head is married to access credit from SACCOs or informal savings groups, and those whose heads were never married were even less likely.

There was some variation in access to semi-formal and informal sources, with households whose head is between the ages of 15-24 less likely to borrow from MFIs, SACCOs, or savings groups, but almost twice as likely to take a loan from a friend.

These households often consist of orphaned children with one of the older children as the head of household. More research should be done to find out why these households are excluded from savings groups. Households whose head was never married were also more likely to borrow from a friend. These may be some of the same households whose heads are between the ages of 15-24 and may reinforce the idea that young households are more likely to be excluded from formal finance. These households may be particularly vulnerable and should be targeted for linkage banking programs.

There were some changes in access to formal credit between 2005/06 and 2009/10 depending on household size. In 2005/06, households with only one member were twice as likely as the average to access bank credit, while households with more than five members were twice as likely as the average to take a loan from an MFI. However, the 2009/10 results show that households with more than five members are more likely than other households to take a loan from a bank. This may indicate a trend of greater access to commercial banks. More research should be done to see if this trend exists. These households were also more likely to take a loan from a SACCO or informal savings group.

Urban households were three times as likely as rural households to take a loan from a commercial bank, but less likely to take a loan from an informal savings group or SACCO.

There were no significant differences in access to formal credit by type of household shock.

Households in the highest asset value class of more than five million UGX were more likely to borrow from banks and MFIs and less likely to borrow from informal savings groups, as expected. Households with one million UGX or less in assets tend to borrow more from friends and relatives. One surprising result is that these low asset value households decreased their borrowing from informal savings groups from 2005/06 to 2009/10. It is possible that they are borrowing less overall.

The results show that subsistence farmers were more likely than many other households to access credit from friends, relatives, SACCOs, and informal savings groups. Households who depend on remittance payments as their main income source were less likely to access credit from friends, relatives, SACCOs, or informal savings groups compared to other households. These results are not surprising, since households that receive remittance payments were less likely to need access to additional funds.

The recommendations in terms of credit were similar to those of savings. The target groups for linkage banking programs should be rural households, subsistence farmers, and households whose head is between the ages of 15-24, 65 or older, female, divorced, separated, or widowed. In terms of household size, households with fewer than six members should be targeted, with the only difference being single member households. Households with one member were already more likely than other households to have access to bank credit. Demand for credit from households of size two to five and households whose head is between the ages of 15-24 is demonstrated by a greater likelihood of borrowing from friends and family, while they are less likely to have access to formal institutions or informal savings groups. Households in the lowest asset

value class should also be targeted, but may benefit more from the savings aspect of the program and may only benefit from credit after having time to build up capital and asset value.

5.3 Discussion and recommendations

Our study results are consistent with previous studies, but also provide a more detailed picture of financial access by looking at institution type. We see that rural households are using informal savings groups for both savings and credit, but are less likely to have access to formal institutions. This is in line with the design of CARE's linkage banking program, which begins with an informal savings group and connects that group to the formal bank after a training period.

More specifically, households whose heads are young, single, or female should be the primary targets of linkage banking programs. Young households may not have strong community ties and may need assistance in joining a local savings group, whereas female headed households may already have strong community ties, but may need assistance in connecting to the bank.

More research should be done on the impact of the CARE linkage banking program, as we are seeing a slight increase in formal bank access, but we do not have enough information to conclude that it is a result of the program. A study should be done at the household or village level, using villages or households with access to the CARE linkage banking program as the treatment and comparing to villages or households without access to the program.

The next steps for this research would be to do a regression analysis to look at the relationships between variables in more detail and to identify any interactions between the variables.

Initial regression results show that access to a formal savings account decreases as age increases. Our chi-square results show that access to formal savings accounts is greater for households whose head has finished some secondary school or higher education and that access to informal savings groups is greater for those whose household head has completed some primary school. The regression results allow us to look at these relationships in more detail. Initial regression results for education show that households whose head has completed any level of primary school or secondary one are less likely to have access to a formal savings account; households whose head have completed post primary training or certificate, senior two, or senior four are more likely to have access to a formal savings account; and that households whose head has completed senior six, post secondary training or diploma, or a college degree are even more likely to have access to a formal savings account. Initial regression results for access to informal savings groups show that households whose head completed primary three, primary six, primary seven, post primary training or certificate, senior one, senior four, or post secondary training or diploma are more likely to have access to savings at an informal savings group. These results are similar to our chi-square results.

The regression results show that access to savings at a formal institution or an informal savings group increase as the household size increases, which is also consistent with our chi-square results.

The chi-square results show that rural households are less likely than urban households to have access to a savings account or credit at a formal institution and more likely than urban households to have access to savings or credit at an informal savings group. These results are the same when we run the regression analysis. A full regression analysis should be done to explore these relationships further.

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